

ABSTRACT

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CONFLICT, COOPERATION, AND SHADOWS OF
THE PAST IN THE OKAVANGO AND ORANGE
RIVER BASINS OF SOUTHERN AFRICA

Antoinette G. Sebastian, Doctor of Philosophy, 2008

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Rival use of limited water resources among riparian states is often problematic and politically contentious. The hydro-politics for transboundary rivers links its riparians in complex multidimensional networks of environmental, political, economic, and security interdependencies. In regions where water is politically scarce, expected to become hydrologically more so, *and* shared, it may be considered more valuable, thus potentially rendering cooperation or conflict prospects more significant. Given the number of agreements, basin organizations, and joint and permanent commissions/committees, transboundary water cooperation amongst southern Africa basin riparians is considered high. Still, a riparian state's competing claims for limited water resources is often problematic and politically contentious because: (a) water agreements are often not about water, (b) cooperation does not equal a lack of no conflict, and (c) understanding the strategic interaction among riparian states as signatories to transboundary river

agreements requires a contextual framework. Water may not be the only story *and* history and hydro-hegemony are important.

In this research, the contextual framework focuses on understanding when and under what circumstances the past, the problem, and the politics interfere with the prospects of cooperation, or enables riparian behavioral change which, in turn, produces the desired levels of cooperation. It identifies and explains how South Africa as both basin and regional hydro-hegemon is driving hydro-cooperation and pursuing its own self-interests.

This research explores how the geopolitical interests and history condition the types of environmental cooperation possible in the Orange and Okavango river basins in Southern Africa. It posits a Maslowian perspective to navigating a hierarchy of obstacles blocking the journey towards reaching quality cooperation outcomes in order to create spaces for positive conflict.

Several of the actors are the same in both river basins. There are, however, differences, which have their origins in history—the shadows of the past. The cases illustrate how history matters. It drives contemporary politics by forcing governments to face difficult choices among sets of priorities, which may appear to compromise one group, unmet needs, or issues over others. History suppresses knowledge, aligns power, and shapes identity by framing the language of politics and power. By doing so, it influences hydro-political dialogue.

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BASINS OF SOUTHERN AFRICA

By

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Chapter 1—Introduction and Theories of Conflict and Cooperation

Introduction

In 2000, I was an observer at a scheduled Okavango River Basin Water Commission (OKACOM) meeting in Windhoek, Namibia. After initial pleasantries were exchanged by all attending delegations, an interesting exchange on other matters dominated the conversation, which is best described as a combination of dysfunctional family bickering and one-upmanship. Immediately, these delegates from various states in southern Africa struck up a tune intricate in its phrasing but familiar to all its participants.

Both the Angolan and Botswanan delegates complained about having no direct flights to Windhoek from their respective states. All flights go through OR Tambo (Johannesburg) International Airport in South Africa. Indeed, the delegate from Botswana seemed to chide his Namibian host on the matter and suggested that Namibia should “do something about that. Why should we (Botswanans) have to fly through South Africa to get to Namibia?” It was also during that same exchange that the Botswanan delegate boasted and teased their Namibian host about the favorable IJC decision giving Botswana victory and sovereignty over Sedudu (Kasikili) islands in the Okavango River in the Caprivi Strip region.

The Angolan delegation, although friendly enough toward their OKACOM counterparts, struggled with the language of the meeting—English—and commented on the absence of documents in Portuguese. That problem has since been resolved as funding from international development agencies, U.S. Agency for International

Development (USAID) and Swedish International Development Cooperation Agency (SIDA), have helped to fund translation of documents into Portuguese and contribute resources and technical support for the OKACOM website.

The first day's agenda of that particular OKACOM meeting was to build consensus for a study proposal to conduct a transboundary water analysis and identify and obtain international support from the Global Environmental Facility (GEF)¹ and from SIDA. One of OKACOM's objectives was to facilitate the formation and implementation of a joint management basin program. OKACOM wanted a GEF-supported effort that would create a strategy and pathway to surmount current practices, policy, institutional, human resource and information barriers and constraints to coordination and joint management of the basin. Previous OKACOM efforts at transboundary diagnostic analysis and preparation of strategic action plans to integrate into national development plans had failed because of conflicting national interests, national interests, that one could discern using the day's earlier conversations and interactions as a metaphor. Portuguese is Angola's official language. However, the use of English and the lack of documents available in Portuguese ignored that fact. Botswanan claims of sovereignty and territorial control over Sedudu had prevailed over Namibia, once part of South Africa, now independent. Still, to get to Namibia one must still fly through South Africa—the former political administrator of Botswana as a British Protectorate.

Issues of sovereignty, transboundary conflict, national interests, and identity, and history were all front and center that day, in the conversation before the OKACOM

¹ The GEF provides grants to developing countries for projects that benefit the global environment and promote sustainable livelihoods in local communities.

meeting officially began, though OKACOM had assumed that with the aid of an international donor, GEF, providing funding to support data collection necessary to consensus building on shared management of the Okavango River, national interests, sovereignty, and the like would recede to background levels of noise. This assumption was patently incorrect; managing the water did nothing to manage the histories or personalities of the players involved.

In this dissertation I am: (a) resurrecting and reinterpreting LeMarquand's early analytical framework on transboundary water cooperation to order and rank state priorities and cooperation barriers into a hierarchy cooperation; (b) exploring how geopolitical interests and the historical-colonial legacy (shadows of the past) condition the types of environmental cooperation that are possible around internationally shared river basins; and (c) explaining why the classic environmental conflict and cooperation literature is incomplete. My research purpose is to establish the hierarchy of transboundary water cooperation and positive conflict² and identify and explain the variables missing from the classic conflict and cooperation literature.

Water issues have been discussed and analyzed from many different perspectives. Here, I'd like to suggest that there are two voices speaking in this conversation. The first speaker considers hydro-politics as existing in a matrix free of history. The second speaks from the past and the present. This voice – this *black* voice – acknowledges the shadows of the past, the remnants of the colonial legacy. Moreover, this black voice insists that the conversation occurring deals with more than just water. Why *do* all the planes have to fly

² For the purposes of this research, positive conflict is generative tension, open dialogue, and dynamic politics absent the threat of war and violence. The absence of war is not necessarily peaceful cooperation. At the same time, there can be peace absent positive conflict.

through Johannesburg? What continues to foster the underlying tensions at OKACOM meetings?

As water scarcity increases, states feel pressure to do more than recognize the need for and implications of transboundary water cooperation. Under such circumstances, riparians may willingly agree to surrender their hydrological freedom, and yield authority to a basin-wide entity, such as a river basin commission, in order to reap the full benefits of water cooperation. Riparians may seek to establish cooperation on a basin-wide scale. Despite this laudable goal, they may be unable to conduct transboundary water cooperation using positive conflict as a conflict resolution mechanism, or to reach a definitive agreement able to tackle the combinations of spatial and hydrological interdependence. Such an agreement would need to negotiate the accompanying political and economic costs of such cooperation, as well as its potential benefits. All too frequently, basin-wide commissions or other similar arrangements lack the financial resources to maintain themselves³, the authority to act, or the capacity to address the objections of their riparians.

Many scholars⁴ assert a connection between an increased demand for limited shared resources and conflict. According to the 1987 Bruntland report by the World Commission on Environment and Development statement, “nations have often fought to assert or resist control over war materials, energy supplies, land, river basins, sea

³ Falkenmark and Lundqvist, “Looming Water Crisis.”

⁴ This includes Galtung, Ehrlich and Ehrlich, Bächler (particularly *Environmental Degradation as a Cause of War*), Turton, Ohlsson, Ashton (particularly “Southern African Water Conflicts: Are They Inevitable or Preventable?” in *Water Wars: Enduring Myth or Impending Reality?*), Peter Gleick, and Homer-Dixon (“On the Threshold: Environmental Changes as Causes of Acute Conflict” and “Environmental Scarcities and Violent Conflicts: Evidence from Cases” are both useful).

passages and other key environmental resources”⁵. Freshwater resources are vital to the global ecosystem, global economics, local development, local freshwater ecosystems, local food security, and national security. “Scarcity and misuse of freshwater pose a serious and growing threat to sustainable development and the protection of the environment”⁶. Water is a material resource, as well as a substance imbued with various socially constructed meanings. Water has an economic value, and is a multipurpose resource useful to many consumers. Moreover, water can become a rallying point for local identities⁷.

Organization of the Dissertation

Chapter one of this dissertation introduces the subject of transboundary water cooperation, briefly discusses trends and issues surrounding the doomsday rhetoric of the global water crisis, and the implications of this rhetoric for a water-scarce southern African region. Additionally, Chapter 1 reviews and critiques the separate literatures on environmental scarcity and conflict and environmental cooperation.

Considerable national, regional, and international resources are going into establishing and supporting river-basin organizations. New political institutions are being developed in order to establish peaceful venues where issues around shared water resources can be negotiated and resolved. We can consider these recently constructed hydro-political regimes a success. However, their sustainability and cooperative success may rely, in their ability to differentiate between friends and enemies. The histories

⁵ Bruntland, *Our Common Future*, 290.

⁶ International Conference on Water and Environment.

⁷ Blatter and Ingram's anthology, *Reflections on Water*, goes more in-depth about this issue.

necessary to determine these types of allegiances are fairly recent; with the exception of South Africa, the oldest of the states in my case studies have only been post-colonial independent states for 42 years. The youngest of these states is only 14 years old.⁸

Chapter two broadens the theoretical framework through a discussion of LeMarquand, the shadows of the past, and hydro-hegemony. I begin with LeMarquand's foundation of key factors shaping river-basin cooperation and posit a ranked hierarchy of importance for these factors. I then supplement this framework with additional conceptual lenses—a focus on the shadow of history, and attention to basin-based hegemonic power or 'hydro-hegemony.' These three lenses are conceptually linked. The first, the shadow of history, involves incorporating colonial histories into an analysis of present-day politics. Hydro-hegemony builds off this analysis of historical legacies by suggesting that the research needs to focus on historical aftermaths – what groups or nations are now disproportionately underdeveloped due to resource allocation during colonialism? More importantly, what issues of sovereignty and economic dominance are specifically created through hydro-politics?

Both the shadows of the past and hydro-hegemony are discussed in depth, and are used to examine what we know from the literature about basin cooperation. Finally, chapter two sets the theme for chapters three and four—the case studies. The case studies in **Chapter three**, the Orange-Senqu River Basin (OSRB), and **Chapter four**, the Okavango River Basin, are the vehicles through which we may examine the details of the theoretical framework explored in the preceding chapters. There is a richness of detail, history, and hydro-politics for both river basins well beyond the scope of this dissertation.

⁸ Botswana and Lesotho received their independence from Britain in 1966, Angola from Portugal in 1975, Namibia from South Africa in 1990, with 1994, marking the end of apartheid in South Africa.

No one research effort could adequately cover all the material and perspectives available for either basin. My intent is to use these case studies in order to explore the specific issues associated with hydro-hegemony, cooperation, and history.

This dissertation's goal is to capture some of the discrete characteristics of each basin as they exemplify the limitations in the basic assumptions of many transboundary water cooperative arguments. The most fundamental assumption in need of questioning is that transboundary water agreements (TWAs), cooperative efforts, and regimes are necessarily about *shared fresh water* resources, including their apportionment, management, and sustainability. Another flaw in the literature is the idea that TWAs inevitably lead to less conflict. Neither may be the case. Treaties do not guarantee cooperation, and the absence of war does not mean the absence of conflict as conflicts range in intensity.

According to a 1963 United Nations (U.N.) report, the large number of international river agreements signed after major domestic and international political upheavals were less concerned with hydro-political issues and more with territorial ones. As a consequence, "the hydrologic sequence of the countries within a basin and the present or potential demands on the river by the basin countries creates different patterns of incentives for cooperation".⁹ Thirty-two years after the study, the 1995 violent conflict between Ecuador and Peru regarding the source of the Cenepa River reinforces the report's message. The conflict was about which actor would have dominion over the Cenepa River source. This dominion would grant its holder control over valuable mineral

⁹LeMarquand, *International Rivers*, 8.

resources. The OSRB and Okavango case studies in my research exemplify in more detail a comparable situation.

Chapter five concludes the dissertation research, summarizes the key issues, revisits briefly the arguments, interprets what the case studies tell us about the expanded theoretical framework explored in chapter two, identifies the theoretical and policy implications of this research, and recommends future areas of research. I begin chapter five by summarizing the arguments of this research and, in the section on theoretical and policy implications have included an update-commentary on the environmental security theoretical debate.

Methodology

This analysis is based on archival materials, contemporary documents, qualitative studies and regional planning material. In two different field visits to the region, I conducted interviews with officials in the Southern African Development Community (SADC) Water Sector, the Lesotho Highlands Water Project (LHWP), local non-governmental (NGO) stakeholder groups, African government officials in ministries in each of the riparian states, technical experts, scholars from regional universities (including the Universities of Cape Town, Pretoria, and the Western Cape in South Africa, as well as the Universities of Namibia and Botswana) and other intellectuals involved in transboundary research and cooperation efforts throughout SADC states, specifically the Republics of South Africa, Namibia, Botswana, and Lesotho. Additionally, I interviewed scholars, researchers, and government officials from the respective Orange and Okavango basin-states during the 2000 World Water Forum at The

Hague. As an invited observer, I attended local community-based catchment and basin workshops. I was also an invited guest at an Okavango River Basin Commission (OKACOM) meeting in Windhoek, Namibia, a SADC water sector meeting in Maseru, Lesotho, and an IUCN (World Conservation Union) donor-supported Community Based Natural Resources Management (CBNRM) program meeting in Gaborone, Botswana. Drawing on these different sources helped me to develop an understanding of the multiple voices at play in this discussion. There are white colonial voices, whose echoes can be heard in the archives and the older treaties. However, there are now newer voices, working to defend and define the sovereignty of the newly independent African states from which they emerge. These voices occasionally share the same perspective when speaking of hydro-politics and transboundary water cooperation in the region, but most of the time they clash vividly.

What are the Politics of Cooperation?

In the politics of cooperation, regime formation is a useful approach to bring states that share resources to the point of negotiating with one another. However, a central determinant of the effectiveness of the cooperative agreements must begin with knowing what the issues to be resolved are in the beginning, prior to the formation of the cooperative regime. In short, what is the problem in need of resolution? Who is expected to resolve that problem?

When nations decide to address the threat of water scarcity, assure their own hydro-security, and calm subsequent tensions emergent from such negotiations, they may enter into an agreement. However, achieving cooperation in international politics is

difficult, especially when the dominant principle in international politics is the territorial sovereignty of states. The implication of this principle is that there is no political unit above and beyond the national state that may impose behavioral change on to states. As Karen Litfin¹⁰ observes, most of the environmental literature does little to address the question of sovereignty directly. The focus is usually on ‘environmental problems’. She argues further that the sovereignty bargains characterizing global ecopolitics are likely to vary according to the nature of the problem. Questions of transboundary pollution, internal natural resource degradation, and global commons (i.e. global warming, Antarctica, outer space, oceans) each have different implications for traditional norms of nonintervention¹¹.

Veronica Ward¹² suggests that ecosystem management approaches to environmental concerns shift the focus to processes operating at different scales below and above the territorial state. Because of this shift, the state as a spatial unit becomes “irrelevant”¹³. Additionally, Ward argues that ecosystem management challenges the principal dimensions of state sovereignty – autonomy, control, and authority – because such a management system requires not only authority-sharing, but may result in a “loss of legal and political control over flora and fauna previously considered either an integral part of the territorial state or available for taking.”¹⁴. Where water is scarce, territorial claims and sovereign water demands regarding transboundary watercourses at the regional and local level have resulted in the formation of numerous agreements, river

¹⁰ Litfin, “Sovereignty in World Ecopolitics.”

¹¹ *Ibid.*, 179.

¹² Ward, “Sovereignty and Ecosystem Management.”

¹³ *Ibid.*, 79.

¹⁴ *Ibid.*, 81.

basin organizations, and other cooperative efforts, all of which suggest that the sovereign states have agreed to engage in something akin to “limited territorial sovereignty”.¹⁵

Reaching agreement about this sovereignty is usually difficult, and there is a significant difference between ownership and control. For example, the headwaters of the Nile and of the Orange-Senqu Rivers are found in countries that have minimal control over those resources. Egypt is the basin hegemon in the Nile case, and South Africa is the basin hegemon of the Orange. In both cases, there is an obvious need to focus on the processes of hegemony, as well as the apparent power asymmetry.

The Nile River is 4,160 miles long, starting at its remotest headstream, the Luvironea River in Burundi, and flows to its delta on the Mediterranean Sea in northeast Egypt. Although the river starts in central Africa, approximately 80% of the water comes from Ethiopia. The Orange-Senqu River has its origins in the Lesotho Highlands in the Kingdom of Lesotho, a small land-locked country, surrounded completely by South Africa. Lesotho is considerably less developed than its Orange-Senqu River co-riparians, South Africa, Botswana, and Namibia.

While sovereign state of Burundi¹⁶ and Lesotho, respectively, “own” the headwaters of two very large watercourses, neither is exercising any substantive control over how those resources are used or being developed. Nor is either state sufficiently powerful to make a decision about the water’s use, or capable of countering the riparian hydro-hegemon’s control over the river’s resources. Neither of these sovereign states is able to exercise absolute control over its physical environment.

¹⁵ Johnston, “The Environmental Law of the Sea: Historical Development,” 22.

¹⁶ Even if one considered Ethiopia, instead of Burundi, as the principal source for major water flow into Egypt, the result is very much the same. That is, Ethiopia is not exercising any substantive control over the Nile River within its borders.

In both of these instances there is a significant difference between riparians exercising control over the water, and riparian ownership. Attention to these power dynamics is necessary both to understand the forces that produce (or inhibit) cooperation *and* to understand its prospects for effectiveness. Lesotho has entered into several cooperative agreements and treaties with the riparians with which it shares the Orange River. Lesotho is a signatory in The Orange-Senqu River Basin Commission, and the key treaty partner in the Lesotho Highlands Water Project¹⁷, which would normally suggest that it is recognized by its co-riparians as having some sort of sovereignty over the river. However, it is South Africa that aggressively pursued the LHWP Treaty in an effort to secure the water supply necessary to its economy and population. Water drunk in Gauteng province, South Africa's industrial and financial heartland, comes from Lesotho.

Under a liberalist system of international relations, mutual self-interested rationality becomes the basis of cooperation and interdependence. If, however, liberalists are correct regarding resolving transboundary water disputes or conflicts, the present challenge is to explain why states should pursue cooperative relationships when such relationships are difficult to achieve, difficult to enforce, and not obviously mutually beneficial. Both realists and liberalist presume self-interested, purposive, and calculated behavior. National self-interest is particularly critical if one intends to engage in cooperative agreements or protocols whose ends results rely on changed behavior on the part of the riparian state. According to the pessimists, the "water wars" are imminent.

¹⁷ The treaty in question is the Treaty on the Lesotho Highlands Water Project between the Government of the Republic of South Africa and the Government of the Kingdom of Lesotho, signed in Maseru on October 24, 1986. One source for information about the treaty's goal, contents, etc. can be found at <http://www.africanwaterlaw.org/html/treatyprofile.asp?treatyid=113>. At this time, there is no electronic version of the treaty available.

Optimists suggest that, not only are the transboundary agreements positive actions to address water management, but that they are also potential pathways to peace, regional stability, and institutional change. Further, optimists believe that action taken now will help countries avert water shortages and other related water crises in the future

Cooperation Politics

In this section, I will outline the environmental cooperation-conflict literature, identify its weaknesses, and briefly explore the nature of transboundary water agreements (TWAs) and the importance and application to southern Africa. This discussion focused attention on the cooperation-barriers scenario. In the presence of uncertainty, where there are many possible strategies and outcomes possible from national policies, some effort to clearly outline the obstacles or barriers to agreements is the first step. The second step is to order these considerations based on their relative importance and relevancy. The third step is to situate these considerations as steps toward full quality cooperation over shared transboundary water resources.

In any basin where multiple states share transboundary watercourses, differences among riparians should be expected. The differences in country characteristics are likely to include population densities, geography, national income per capita, water per capita, military might, economic power, access to and control of natural resources, the size of the basin countries, and levels of development. These differences influence each riparian's ability to bargain over its share of water in a particular basin. Additionally, these differences may impact a riparian's ability to either make or withstand threats. Power

asymmetry may manifest itself differently under different circumstances, but is most recognizable in the politics of hydro-hegemony.

The ability of any riparian state to cooperate is complicated by its riparian position, and its ability to contend with all the issues that will need to be addressed. Because there are so few multilateral or international water treaties, Just and Netanyahu¹⁸ assert “they are limited in scope of cooperation”, mostly because the issues that need to be addressed in such agreements “are simply too complex to consider all the possible state contingencies or to get agreement on all such contingencies among countries”¹⁹. Because of this, the persistent ability of any signatory riparian state to continue to act unilaterally on issues having a direct impact on co-riparian countries is frequently permitted, albeit tacitly, by the failure of those same multilateral agreements to enforce the terms of those agreements. Basically, the agreements themselves lack teeth.

The establishment of an agreement or treaty is the end-result of a lengthy process involving some level of cooperation between sovereign states involved in the treaty negotiation process. Indeed, cooperation can represent a broad range of state-to-state relationships, and as well as the dynamics between states, states’ shared and unshared resources, and other states’ desire for these resources. According to Philip Allott²⁰, there are many relationships between states on all different types of matters. He considers ownership of many different degrees: possession, constructive possession, custody, control, and so forth.²¹ The implication is that the agreement reflects the issues of concern, and that its organizational framework, text, and related institutional

¹⁸ Just and Netanyahu, “International Water Resource Conflict: Experience and Potential,” 12.

¹⁹ Ibid.

²⁰ Allot, “Power Sharing in the Law of the Sea.”

²¹ Ibid., 9.

arrangements are organized to tackle a specific set of priorities or problems.

Environmental regimes or cooperation regimes are one way to understand these agreements.

Keohane defined regimes as “institutions with explicit rules, agreed upon by governments that pertain to particular sets of issues in international relations”²².

Krasner’s definition is more complex and elaborate; he argues that regimes are “implicit or explicit principles, norms, rules, and decision-making procedures around which actors’ expectations converge in a given area of international relations.”²³ Krasner goes further and clarifies what he means by principles, norms, rules, and decision-making procedures by linking them relationally. While there is no universally agreed-upon definition of international regimes, some version of both Keohane and Krasner’s theories are generally accepted. However, Keohane’s definition is very brief, and surprisingly sparse on the nature of the formation of the ‘agreed upon rules’.

The general intent of these agreements is to move nations into a position where they can negotiate the conditions that require them to coordinate their actions and politically self-enforce practices that assure fairness, efficiency of use, access and environmental protection of the natural resource under negotiation. It is possible that the behavioral model for regimes does not adequately address power dynamics; it is possible that differences in relative power (military-, economic-, knowledge-based) between actors create obstacles for effective cooperation.

²² Keohane is one of the many prominent theorists analyzed in Hasenclever, Mayer, and Rittberger’s *Theories of International Regimes* (Cambridge: Cambridge University Press, 1997). “International Institutions and State Power,” the article from which this quote was drawn, lays out some of the foundations to his critical framework.

²³ Krasner, *International Regimes*, 2.

Environmental Change, Scarcity and Conflict

Over the last fifteen years, a sizeable body of research examining the connections between environmental change and violent conflict has posited that violent consequences result from environmental resource scarcity, failing states, and existing internecine tensions²⁴. The existing literature on conflict has explored the links between environment (resource) scarcity, population growth, political instability, and violent conflict. One recurring theory is that environmental scarcity causes violent conflict and that the probability of violent conflict is more likely to increase when resources are not only scarce but cross political boundaries, as is the case with shared transboundary freshwater river resources.²⁵

Elhance writes: “This multiple-use potential of freshwater, especially transboundary water resources, combined with the certainty of growing water scarcities in many arid and semi-arid regions of the Third World makes hydro-politics between riparian states that share international river basins one of the most urgent, complex, and contentious issues that the developing countries and the international community will have to face and resolve in the next century.”²⁶

According to L. Susskind, E. Siskind, and J. W. Breslin²⁷, the prospects of environmental treaties are not encouraging. In their study of ten environmental treaty making efforts, they determined “ . . . that the best that can be said about the agreements reached in recent years is that they *may* slow the rate of environmental degradation, but

²⁴ Homer-Dixon, Gleditsch, Bächler, and Spillmann have all written extensively on this topic.

²⁵ Not all scholars agree that transboundary conditions make conflict more rather than less likely; see, for example Homer-Dixon’s “Environmental Scarcities and Violent Conflicts.”

²⁶ Elhance, *Hydro-Politics in the Third World*, 1999.

they will not reverse the destructive processes that triggered the need for action, nor repair the damage already done.’’²⁸ Their measures of success focused not on how many agreements were signed or signed and ratified, but on the speed and effectiveness with which the signatories were likely to produce tangible environmental improvements. Benvenisti²⁹ contends that many of the legal frameworks used by states damaged by water pollution are considered weak at the international level. Further, the weakness of these agreements and their related legal frameworks are exacerbated because they offer little guidance in resolving transboundary river management problems.³⁰

Some suggest that water is a touchstone for conflict³¹. The environmental scarcity-violent conflict lens, however, is a rather narrow one from which to view violent conflict. By the same token, it is an equally narrow lens through which to view peace-making. Ted Gurr³² determined that while ecological and demographic stresses are contributing factors to conflict, these factors are declining in significance as *primary* factors. Instead, Gurr³³ asserts that the chief factors revolve around contention for state power and territorial control.³⁴ Hydro-hegemonists, others, and research presented in subsequent chapters of this dissertation agrees: resource scarcity, per se, is not responsible for violent conflict. There are always other contributing causal factors. In many cases, however, increasing resource scarcities or rising demand *may become* contributing factors to a pre-existing conflict.

²⁸ Susskind, Siskind, and Breslin, *Nine Case Studies of International Environmental Negotiation*.

²⁹ Benvenisti, *Sharing Transboundary Resources*.

³⁰ Frederiksen, Wolf, and Marty, particularly Marty’s *International River Management – the Political Determinants of Success and Failure* (Zurich: University of Zurich, 1997), all deal with these issues.

³¹ Ashton, “Southern African Water Conflicts,” and Gleick’s biennial water reports discuss the relationship between water and conflict.

³² Gurr, *Minorities at Risk*, 1993.

³³ *Ibid.*

³⁴ *Ibid.*

Rising demand can be a source of both conflictual and cooperative interactions between actors, stakeholders, and resource users. There is an expectation expressed via the rhetoric that conflict over international (transboundary) water resources exceeds cooperation, and that, in the future, water wars are more likely than water cooperation. The idea of water wars as a trend in the 21st Century was first seriously argued by Ismail Serageldin, a former World Bank Vice President. His perspective is quoted often, including the views he expressed in a 1995 *New York Times* article and his speeches as Chairman (1998-2000) of the World Commission for Water in the 21st Century.

There is evidence to support both water cooperation and conflict. After a 2003 study of 1,831 interactions, Wolf and other researchers at Oregon State University found only 37 disputes involving violence over a 50-year period. Thirty were between Israel and one or another of its neighbors-- the violence in these disputes ended in 1970. One hundred fifty seven treaties were negotiated and signed during this same time period.³⁵ However, the Oregon State researchers excluded events where water was incidental to the dispute, such as those concerning fishing rights, access to ports, transportation, or river boundaries, as well as those where water was a tool, target, or victim of armed conflict. Because of those exclusions, I suggest that the quantitative analysis offered by Wolf and associates fails to capture the issue-linkages surrounding water cooperation and conflict, and therefore only provides a very general picture with limited usefulness.

³⁵ Wolf, *Shared Waters: Conflict and Cooperation*.

In the case of violent conflict, in order to register on an international scale, each must generate at least 1000 battle-related deaths per year.³⁶ The Collier-Hoeffler model³⁷ determined that such conflicts are the result of a complex set of events and factors, including political corruption, unstable governments, ethnic tensions, religious grievances, and poverty. They argue that the level of income per capita, rate of economic growth, and the structure of the economy—specifically the level of dependence on primary commodity exports—are three significant predictors of violent conflict. Thus, doubling the per capita income halves the risk of civil war. The effect of primary commodity exports is non-linear, peaking with exports at about 30%. A country with primary exports of 25% of its GDP has a 33% risk of conflict.

Ethnic and religious composition also matters, especially when ethnic dominance accounts for 45-90% of the population. Alternatively, greater “ethnic and religious diversity reduces the risk of rebellion”³⁸. According to Ian Bannon and Paul Collier, resource conflicts must be financed, and “violent secessionists movements are statistically more likely if a country has valuable natural resources: oil, in particular”³⁹ and diamonds seemingly rank high, as both can be used to finance and sustain the violence. They contend that violent conflicts or civil war conflicts in Africa demonstrate the more worrisome trends.

In support of their position Collier-Hoeffler noted that two-thirds of Africa’s intrastate conflicts in the 1990s were civil wars and at least two, between Sierra Leone

³⁶ A civil war is defined by Gleditsch and colleagues as a violent conflict that generates at least 1,000 battle-related deaths per year. For more information on this definition, see “Causal Pathways to Conflict” by Wench Hauge and Tanja Ellingsen in Diehl and Gleditsch’s *Environmental Conflict*.

³⁷ Model referenced in Bannon and Collier, *Natural Resources and Violent Conflict*.

³⁸ Collier-Hoeffler in Bannon and Collier, *Natural Resources and Violent Conflict*, 3.

³⁹ Bannon and Collier, *Natural Resources and Violent Conflict*, 5.

and Sudan, involve specific resource capture and control. From 1991 to 2002, the Revolutionary United Front rebel forces in Sierra Leone fought the government for control over diamond resources. In Sudan, the continuing conflict between Arabs (mostly herdsmen) and non-Arabs (mostly farmers) centers on the control of land and oil resources. Additionally, Bannon and Collier cite the Angolan conflict, Africa's longest civil war, which went on from 1974-2002.

According to the 2000, 2001, and 2002 SIPRI Yearbooks, Africa is and remains the most conflict-ridden region of the world. According to SIPRI, there were seven wars in the 1970s, eight in the 1980s, and fourteen in the 1990s. Acknowledging the civil wars in African states is important; they frequently spill over into bordering states by involving the military and civilian populations of neighboring countries, and can bring instability to an entire region or group of actors. For example, the civil war in the Democratic Republic of Congo eventually involved nine countries, including Namibia, Angola, and Zimbabwe, who all willingly contributed troops in support of President Laurent Kabila. The estimated death toll exceeds four million lives. A truce has been in place since 2002 -- however, at the time of this research, there has been no disarmament and peace remains elusive.

One important limitation in the Collier-Hoeffler argument is that they only considered civil wars or internecine violent conflicts. This limits the applicability of Collier's argument to environmental resources conflicts, especially in cases where the resources cross political boundaries, as in the case of shared transboundary water resources.

Other challenges to existing conflict literature involve assumptions surrounding future conflicts and-potential scarcities. Nils Petter Gleditsch “. . . questions the very idea that humanity is facing increasing environmental scarcities”.⁴⁰ At present, there is a lack of the necessary systematic research, empirical evidence, or large numerical studies needed to support the causal links between environmental scarcity and violent conflict.⁴¹ Gleditsch, in particular, offers a strong and coherent argument based on nine common problems in this regard. Also, the existing case-study-based research might have been biased toward cases disproportionately determined for conflict, which makes it difficult to separate the causal role of environmental factors for conflict.⁴²

There are many conditions that interfere with the development of TWAs or have an effect upon their relative success. However it is not clear if these conditions are actually obstacles to successful TWAs or if they only help to explain the relationship between states engaged in transboundary river cooperative efforts. This research makes it clear that there are obstacles which must be overcome in order to achieve cooperation. The relative success of TWAs depends upon obtaining conditions that include: cooperation between basin riparian states in a manner that assures equitable access to water resources; sustains the freshwater ecosystem; provides ample and continuous opportunity for information exchange; establishes an enforcement mechanism to assure agreement compliance and resolve disputes; and, most importantly, creates a venue for shared and co-equal power among basin riparians.

⁴⁰ Diehl and Gleditsch, *Environmental Conflict*, 276.

⁴¹ Diehl, Gleditsch, Levy all point out the gap in this branch of the research.

⁴² This was confirmed in my 2000 interview with Kenneth Conca Interview, and in my research. Hauge and Ellingsen’s 1998 article “Beyond Environmental Scarcity: Causal Pathways to Conflict” is also a useful text bringing out the myriad of points associated with this issue.

Among co-riparians within a basin are power relationships. Aspects of this hierarchy may be attributed to riparian position, regional hegemony, and military force. One might argue that it is the perspective of coercive power⁴³ in the hands of a riparian hegemon that drives the formation of TWAs, and ultimately TWA cooperation.

Rather than a direct causal link between environmental scarcity and violent conflict, the research now considers environmental scarcity or resource scarcity as a contributing factor to conflict. Even with that, there are other weaknesses in the conflict literature research. The environment-conflict causal link literature is weak in its explanation of the dynamics of conflict, the definition of the term conflict, and the methods through which non-violent conflict is waged. Moreover, the literature makes little distinction between armed conflict, threats of military violence, and more abstract tactics of coercion. Robert Keohane refers to such tactics as “coercive resources”.⁴⁴

Under those circumstances, the conflicts over the delineation of hydrologic boundaries may be less about the water resource, and more about maintaining sovereign territorial integrity. It is important to recognize that the negotiation, development, and content of transboundary water agreements may have little to do with water conflicts, except as a means to generate an alternative platform for boundary or resource control discussions which have more to do with territorial integrity. This is especially the case when the transboundary watercourse also happens to involve a boundary-forming

⁴³ Michel Foucault suggests that all power is coercive. Here, I’m referring to power that is used to compel certain types of behavior, as opposed to collaborative or soft power, which operates to persuade other actors.

⁴⁴ Keohane, *After Hegemony*, 44.

(contiguous) river.⁴⁵ Thus, it may be more politically useful to acknowledge TWAs as a means to help explain and define relationships between riparians.

Large complex systems, like multilateral transboundary watercourse agreements and their impacts among water-scarce nations, are very difficult to understand, particularly in a region where states are politically, geographically, and economically dissimilar. Further, trying to deconstruct them may not yield the desired knowledge about causal relations of environmental scarcity, water securitization, and conflict generally for which one is searching. The lineages of these complex systems are mired in an inherited past incorporating the histories of past conflict, colonization, and contemporary industrial needs.

The upstream/downstream considerations coupled with the asymmetrical nature of riparian states are serious obstacles to the deep level of cooperation necessary for effective transboundary watercourse agreements. Given this, Lowi⁴⁶ argues that behavioral change and acceptance on the part of dominant riparians is necessary. Just and Netanyahu⁴⁷ conclude that the formation of a coalition and its size are influenced by the various countries' abilities to provide incentives or disincentives to other riparians, either to bring them closer to or further from the negotiation table. Further, they assert that there are considerably fewer multilateral transboundary water agreements; that multilateral agreements (or treaties) by their very nature, translate into limited cooperation; and that multilateral agreements are "too complex" to adequately address all the issues, various contingencies, and individual riparian concerns and interests.

⁴⁶ Lowi, *Water and Power*.

⁴⁷ Just and Netanyahu, "International Water Resource Conflict."

There are more political issues for states to consider. Conflict is usually seen as the threat, while cooperation is the goal. The goals are specific to each river basin and may include, for example, equitable use, pollution management and mitigation, equitable shares, or sustainable management. Conflict may contribute to solving a problem, breaking a stalemate or improve on mismanagement, while cooperation often may help perpetuate a bad state of affairs. There are others, in addition to Homer-Dixon, who continue to counter the challengers' positions and have continued to support even the most tenuous relationship between resource scarcity and conflict.

The “environmentally-induced conflict” literature appears to make a persuasive case. However, other scholars have voiced opposition to the resource scarcity and violent conflict thesis. According to Levy, “the most important implication [of this research] is a need to explore the causes of regional conflict as an important end in itself, and to abandon the current fad of merely demonstrating links to environmental deterioration”⁴⁸. Levy suggests that direct causal links between environmental scarcity and violent conflict are weak at best, and difficult to prove. By arguing environmental cooperation is fundamental to peacemaking, it may be easier to neglect countries vulnerable to conflict and to the links between conflict and natural resources. Countries engaged in conflict over water, however, may be the exception to this rule.⁴⁹

While the causal link between environmental change and violent conflict is weak, the theoretical framework used to examine how environmental scarcity operates as an intervening variable contributing to state capacity to manage environmental problems,

⁴⁸ Levy, “Is the environment a national security issue?”

⁴⁹ Several authors, including Peter Gleick (“Environment and Security: The Clear Connections” and “Climate Change”) and Malin Falkenmark (“Freshwaters as a Factor in Strategic Policy and Action,” in Westing’s *Global Resources*), describe this politically tense scenario.

ethnic tensions, or social and political transition is extremely relevant to an analysis of hydro-politics. In his environmental scarcity and violent conflict arguments, Homer-Dixon⁵⁰ identified three types of environmental scarcity:

- (1) supply-induced scarcity caused by degradation and depletion of an environmental resource, e.g. the erosion of cropland;
- (2) demand-induced scarcity as a result of population growth within a region or increased per capita consumption; and
- (3) structural scarcity, the result of an unequal social distribution of a resource that concentrates it in the hands of a relatively few people while the remaining population experiences serious shortages.

Essentially, there is an eternal conflict between these two theoretical perspectives: that ‘environmental scarcity leads to conflict’ (Malthusian-Hobbesian theory) and that ‘technology plus virtual water solves everything’ (Cornucopian-Lockean theory). This research is not an attempt to re-debate this theoretical conflict, but to suggest that the debate lacks a systematic analysis of response or the strategies used by states to cope with environmental scarcity and insecurity. However, since the research presented here is more aligned with theories of Political Realism than any other, its starting point assumes that scarcity-induced conflict and environmental security are high politics. Even when water scarcity or shared water resources are not the issue around which conflict and cooperation are discussed and negotiated, it may be politically advantageous to present water as being scarce.

⁵⁰ He discusses these issues in both “On the Threshold” and “Environmental Scarcities and Violent Conflict.”

With the proliferation of international and environmental agreements frequently taken for granted, it is important to recognize that reaching agreements is difficult. Several factors, including imposition of political boundaries, the degree of water interdependence, the degree of water scarcity, and the availability of alternative water resources, create varied geographical and political dynamics between the basin states. This complexity is exacerbated by the linkage of issues that may or may not be related to the issue of transboundary water resources management, such as defining borders, redressing past grievances and relationships between actors, exercising or asserting sovereignty over other natural resources, or seeking concessions on issues that are politically or economically important to one or more riparians. A deeper level of cooperation involves the actual implementation of the content of the agreement.

Deciding whether to link or de-link issues can become challenging. One approach toward agreement-making and enhancing cooperation is to link issues to a set of mutually advantageous concerns that normally would not be available under alternative circumstances.⁵¹ As a result, it is posited that actors would make concessions on those issues about which they care little, and agree on those that are important. In this way, riparians can expand the potential benefits of cooperation and agreement formation beyond water issues. As is evident from the Transboundary Freshwater Dispute Database, as many as 43 percent of treaties include linkages to non-water issues. Still, the complexity of many issues may not lend themselves to a basin-wide scale where the operating assumption is that water *is supposed to be* the central issue.

⁵¹ Susskind, *Environmental Diplomacy: Negotiating More Effective Global Agreements*.

Transboundary rivers are managed with various degrees of cooperation, including (1) full coordination of policies; (2) continuous joint decision making and policy coordination;⁵² (3) a rule-based framework; (4) shared expenditures; and (5) continuous willingness to exchange information. Those degrees of cooperation may be driven by non-water related incentives, such as economy and trade, or indirect water-related incentives such as flood management or river navigability, or direct water-related issues of water sharing or water supply. The level of cooperation, particularly as related to items 4 and 5, may require continuous communication among actors. On prestige projects, this communication is likely to occur between patrons and national elites who may ignore local stakeholder and environmental interest groups. In some respects, these networks have their origins in the historical legacy of colonial political exclusivity and benefits, where a few held and continue to hold privileged positions within distinct networks not easily accessed by either outsiders or outside influence.

As the case studies in chapters 3 and 4 will show, neither hydro-politics nor hydro-security issues can be reduced easily into an either-or narrative. Multiple scenarios are possible. For example, transboundary water development may be a strategic bargaining tool to attract international resources; protect a particular resource and thereby become a mechanism for exercising control over neighboring riparian states; eliminate a trade barrier; increase trade of a specific product; inhibit economic growth, for fear of the competition, or development more generally; prevent control of mineral resources; or detract attention from water development plans or diversion strategies not covered by any agreements. As a result, a transboundary water agreement designed to institute certain

⁵² A. K. Biswas develops this political process further in “Management of International Waters: Problems and Perspective.” Lowi’s *Water and Power* also analyzes this step.

behaviors might also lead riparians to abandon or restrict other behaviors having to do with hydro-security. Moreover, as stated previously, issues of shared transboundary water resources cannot be separated easily from national security concerns and statehood. The connection between water and energy, as in the case of huge hydro-power infrastructure development, is an example of the latter. There is a need for a more nuanced approach.

This research maintains an emphasis on state actors by using the Political Realist⁵³ international relations perspective. It deviates somewhat from traditional realism in that it recognizes the transboundary nature of environmental problems. However, this research takes as its base assumption the idea that environmental issues are a central part of the concepts of the state, sovereignty, territory, national interest, and, to a great extent, the international balance of power.

Southern Africa

Southern Africa is a critical research area for examining these issues because they are all coming to the forefront simultaneously. The shifting dynamics between the region's hydro-geography; the ongoing national, regional, and global environmental change; and the political transformations of the post-colonial, post-apartheid, and post-Cold War era all create the new world order in which the southern African states now find themselves. Further, institutional arrangements for cooperative resource

⁵³ Realism as introduced by Kenneth Waltz, where the focus is on states as rational, which maximizes state power in an anarchic system. In this scenario, state behavior is mainly a function of the structure of power relations in such a system. See Kenneth Waltz, *Theory of International Politics* (Reading, Mass.: Addison-Wesley, 1979); and Robert Gilpin, *War and Change in World Politics* (Cambridge: Cambridge University Press, 1981).

management are on the increase in Southern Africa.⁵⁴ In the mainstream literature, hydro-politics is not only a relatively new discipline, but has been integrated, rather successfully into literature on environmental scarcity and conflict and regime cooperation. However, this has not necessarily been the case in southern Africa, and particularly in the Okavango and Orange-Senqu River Basins where, according to Turton, there is a long history of cooperation. These cases were selected as representative of a larger political dynamic occurring in the riparian states which constitute these shared freshwater river basins.

Exploring strengths and possible weaknesses in current hydro-political theory makes sense in these two river basins because most of the countries (South Africa, Namibia, Botswana, and Lesotho) are dry, water scarce, and likely to become more so in the future. This is due in part to low and variable seasonal rainfall and high rates of evaporation⁵⁵ and what is likely to be an increasing growth-related demand. The regions investigated in this project have distinct, but shared histories. Colonialism lasted longer than any place else in this part of Africa. The liberation movements were armed and violent struggles in Angola, Namibia, and South Africa. Although none of the basin riparians have had a military coup post-independence, the civil war in Angola and apartheid further exacerbated regional and local politics, and in many respects extended colonialism. Cold War politics played out in several of these riparian basin states, and the region overall. Now China has become a major international donor actor in the region. While there has been something that approximates democratic elections in all of the

⁵⁴ Conca and Dabelko's anthology, *Environmental Peacemaking*, provides a brilliant introduction to this issue.

⁵⁵ Heyns, "Cooperation in the Okavango River basin: The OKACOM Experience."

riparians, in many respects domestic politics remain dominated by first generation liberation movements cum governments. As a result, for countries in the Okavango and Orange-Senqu River basins, this mutual experience has enabled political leadership to share history and a mutual interest in retaining power. This shared interest is a possible common ground, especially regarding cooperation over shared water resources. Further, for the riparians in each of the case studies, cooperation over shared freshwater resources enable each respective government to attract international donor resources, sustain the status quo, and offers a place on the international environmental stage in the political and environmental sustainability discourse.

There are also differences amongst the riparians. Chief among these differences is the almost 30-year post-independence civil war in Angola, the non-violent independence of Botswana, the large white settler populations which remained in South Africa, Namibia, and to a lesser extent, Botswana. Paradoxically, the long-term-permanent (and current) presence of white settler-ruled regimes created an economic and structural infrastructure developmental advantage and firm control over resources which has contributed to the economic advantages enjoyed particularly by Namibia and South Africa.

Unlike those in the Middle East, particularly those basins located in Israel, Jordan or Turkey, these are non-securitized basins. The hydro-politics and water concerns easily transcend multiple areas, including water for meeting the basic needs of human consumption supply and sanitation, the hydro-geo political aspects of national security, energy supply and development. At the same time, these water concerns legitimate worries over the accessibility of sustainable freshwater supplies and the diminishing

supply for freshwater ecosystems of considerable local value and global interest. These cases provide useful examples of (a) the environmental scarcity-environmental security nexus, and (b) water as a potential flash-point and cross cutting issues. In terms of the latter, water cuts across issues of health, security, environmental sustainability, political economy, hydro-geography, international relations, history and hydro-hegemony. The Okavango and Orange-Senqu River basins were selected for comparison to explore their respective similarities across multiple variables *as well as* on one or a few key variables. These are good cases because they offer the potential to examine obstacles to and opportunities for transboundary water cooperation on several levels and explore the very nature of that cooperation.

In order to investigate the politics of water, it is crucial to examine its physicality. Water is unevenly distributed across southern Africa as expressed in both spatial and temporal (seasonal and inter-annual) terms. The major causes of this uneven distribution are the steep east-west and north-south gradients in rainfall and evaporation.⁵⁶ Essentially, the region goes from wet in the north and east to extremely dry in the southwest. The unequal distribution of rainfall and associated runoff is reflected in the absence of perennial rivers and lakes in some parts of the sub-continent. Namibia, Botswana, and some parts of South Africa are strikingly water-poor.⁵⁷ Also, due to extreme temporal and spatial rainfall variability, endemic drought and periodic floods characterize this region. The maldistribution of water means that where water is scarce,

⁵⁶ Falkenmark (“The massive water scarcity now threatening Africa”) and Conley (“A Synoptic View of Water Resources in Southern Africa”) both describe the water/weather connection more deeply.

⁵⁷ Heyns and Pallet both discuss this in *Namibia’s Water: A Decision-Maker’s Guide*.

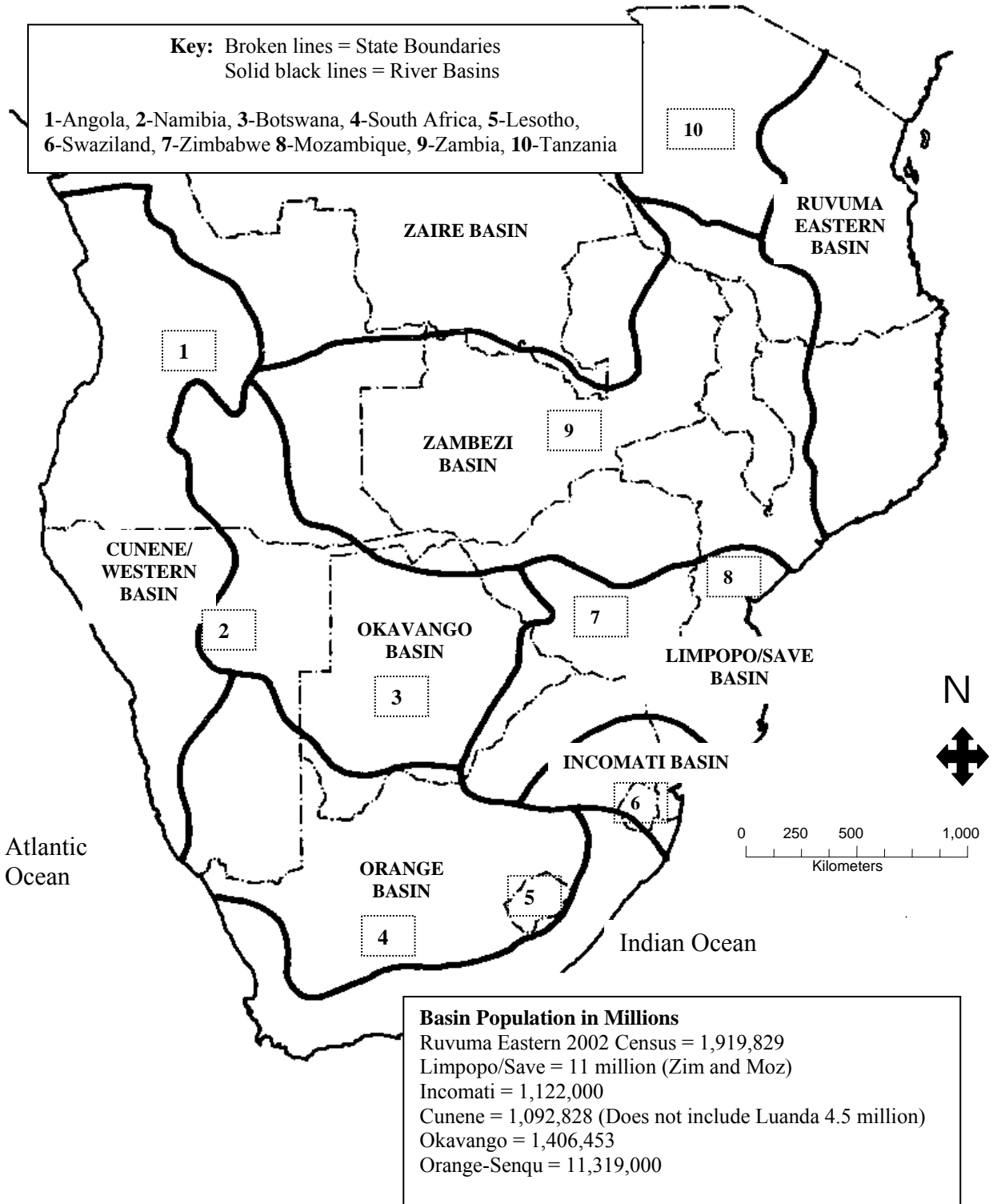
shared, and subject to increasing demand, riparian state control of such a limited resource becomes central to regional and state politics.

The Southern African region occupies a unique position with regards to the world's river basins: the highest density of international river basins on Earth can be found in this poorly developed area.⁵⁸ Of the 300 or more freshwater basins, an estimated 260 or more are shared by two or more countries. Shared basins comprise more than 47% of global land area: the majority of such areas are found on the continents of Africa, Asia, and South America—the Global South. The southern African⁵⁹ region is, by and large, arid and semi-arid. All its major rivers are shared by two or more countries. The drainage areas of the fifteen major river basins cover as much as 70% of the region's land surface. By way of example, the Zambezi River is shared by eight countries. Mozambique is downstream in nine different river basins (Table 1). With the exception of the island nation-states of Mauritius and Seychelles, all the other Southern African Development Community (SADC) countries share river basins with one or more neighboring states.

⁵⁸Granit, "Swedish Experiences from Transboundary Water Management in Southern Africa."

⁵⁹ For the purpose of this paper, Southern Africa is defined as the mainland countries making up the Southern Africa Development Community (SADC). The treaty establishing SADC was signed in Windhoek, Namibia, 1992 and builds on the former SADC that was established in Lusaka in 1980. Member states are: Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. Each member State has a responsibility to coordinate a sector or several sectors on behalf of the others member states. SADC's goal is to achieve an integrated regional economy on the basis of balance, equity and mutual benefit.

Figure 1. Major Southern African River Basins map redrawn by author, Source. Original image from combined sources; Water in Southern Africa (1996) Cited Source: USAID, SARP (Southern African Regional Water Sector Assessment, Vol 1: Final Report, Gaborone, July 1995.)



Scientists and engineers have been at the forefront in applying technological innovation to international fresh water resource problems and management. These efforts have been accompanied by a wealth of research on the subject of water and its importance. The net result has been interbasin transfers, dams, diversion and retention schemes, flood control management infrastructure development, and a growing emphasis on integrated water resources management (IWRM)⁶⁰. Some argue the emergence of IWRM is not only significant, but that it also engages a network of experts, interested parties and influential decision makers into a process where previously scientists and engineers were dominant.⁶¹

Table 1. Overview of basins shared by continental SADC member countries**

**Based on Munyaradzi Chenje and Phyllis Johnson 1996, *Water in Southern Africa*; and John Pallet 1997, *Sharing Water in Southern Africa*.

Country	Number of Basins	Basins shared with other SADC countries
Angola	5	Congo, Cunene, Cuvelai, Okavango, Zambezi
Botswana	4	Limpopo, Okavango, Orange, Zambezi
DR Congo	2	Congo, Nile
Lesotho	1	Orange
Malawi	1	Zambezi
Mozambique	9	Buzi, Incomati, Limpopo, Maputo, Pungwe, Ruvuma, Save, Umbeluzi, Zambezi
Namibia	5	Cunene, Cuvelai, Okavango, Orange, Zambezi
South Africa	5	Incomati, Limpopo, Maputo, Orange, Umbeluzi
Swaziland	3	Incomati, Maputo, Umbeluzi
Tanzania	3	Congo, Ruvuma, Zambezi
Zambia	2	Congo, Zambezi
Zimbabwe	6	Buzi, Limpopo, Okavango, Pungwe, Save, Zambezi

⁶⁰ According to the Global Water Partnership (GWP, 2000) IWRM “aims to ensure the coordinated development and management of water, land, and related resources by maximizing economic and social welfare without compromising the sustainability of vital environmental ecosystems

⁶¹ Conca, *Governing Water*.

A functionalist (neo and otherwise) would claim that negotiations over low-politics issues, like the environmental problems surrounding a transboundary watercourse, can spill over into the high politics of security and wealth. The functionalist promise would stand behind negotiations over water, where the hope that agreement over water usage and sharing would create relations between negotiators that could support greater agreement on other issues.⁶² This research suggests that there are no easy technical issues associated with the high politics of these environmental concerns, and that the mere appearance of a technical issue is much more fundamental to state politics and economics.

While little of the science regarding freshwater resources is in dispute, the most serious issues surrounding transboundary freshwater resources are political, such as rising concerns over resource allocation, power, and influence. “Who gets what, when, and how?”⁶³ This is especially the case for shared transboundary (international) watercourses. The agreements—resource regimes—must not only be technically feasible and practicable, but also politically possible. However, the politics in southern Africa may depend entirely upon who is doing the politics. While doing my fieldwork, I observed differences in perception, which I believe may have been influenced by skin color (white and black Africans), personal life experience, and class. I want to emphasize that this was not always the case, but it is important to remember how profoundly divided southern African states were, and, to an extent, still are along social, economic, political, and racial lines. As a result, these states face severe development challenges.

⁶² Conca and Dabelko, *Environmental Peacemaking*.

⁶³ Lasswell, *Who Gets What*.

Responses from an interview with Mr. Abraham Nehemia, a black Namibian African board member of NamWater,⁶⁴ were most revealing. When asked about Namibia's efforts to meet its water needs and the development of new water policy, he responded by saying that "there are many issues of concern, but history interferes with Namibia fulfilling harmonization with its neighbors as it is attempting to build its own identity and asserting independence, but the country (Namibia) is taking dramatic steps." He offered some detail about what those steps would include, such as an examination of colonial-era laws; establishing a cabinet level committee on water issues to determine more clearly the issues and studying thematic areas, equity, stakeholders, and economic water-related reforms, such as going from paying nothing to full cost recovery. Finally, he strongly suggested that "the political leadership must prove to the people that the previous way, which was so detrimental to them, not only no longer exists, but that the replacement political systems would do things differently." He willingly recognized the economic and hydrologic links Namibia has with its riparian neighbors, Angola, Botswana, and South Africa, but was very clear in expressing that Namibia wanted "some political distance". He further suggested that "Namibia's water interests were not being adequately represented" by the then water elites, in reference to the mostly white Namibian government officials. It was clear that he recognized that one could not separate politics from water, and because of that relationship, "the government must have the *'right'* people to represent Namibia's interests", a mantra that would be repeated from many that I interviewed, and imbued with different meaning each time.

⁶⁴ Mr. Abraham Nehemia is a board member of NamWater. NamWater is the commercial parastatal entity supplying water in bulk to industries, municipalities and the Directorates of Rural Water Supply in the Ministry of Agriculture, Water, and Forestry (DAWF). The Namibian government is the sole shareholder for NamWater and is represented by the Minister of DAWF who in turn appoints the Board of Directors.

In this dissertation, the use or reference to ‘water elites’ is not intended to convey a negative perspective. These water elites are knowledgeable, dedicated professionals who combine a passion for and dedication to understanding and researching the regions’ water issues, stakeholder needs, and institutional capacity building. They are committed individuals, as well as regional citizens with specific racialized and gendered experiences. These experiences have impacted who received (and receives) access to what education, who that education benefits, and what benefits that education grants, particularly in terms of using one’s knowledge to advance the issue of cooperation around shared freshwater resources. Never during my interviews did I come to suspect or conclude anything less than a sincere, rigorous regard for the regions’ hydro-political challenges. However, the dominance and influence these individuals wield should not be discounted. They are individuals using their education to benefit both themselves and their country’s national interests. They are significant actors in the hydro-political discourse. Others refer to these individuals as the “discursive elite” and define them as “those persons who are in a dominant position within bureaucratic entities and who can determine the nature, form and content of the prevailing discourse, also known as the sanctioned discourse”.⁶⁵ I use “water elite” in order to highlight the arena in which these actors work.

The SADC region is undergoing increasing political change. These changes include democratization; stabilization; destabilization; urbanization; population growth; environmental cognizance; environmental degradation; and modernization. Southern Africa is, however, a water-poor region. Under these circumstances, the potential for

⁶⁵ Turton and Meissner, *Hydropolitics in the Developing World*, 37.

conflicts over shared water resources exists and is expanding. There are growing and increasing demands on water in the SADC region, including population growth and rapid urbanization. When combined with the pre-existing water demands of agriculture, mining and other industrial uses, the larger demand is likely to result in a decrease in available freshwater per capita, an increase in providing water, and water stress and water scarcity.⁶⁶ Increased demand is also likely to contribute to increased competition, conflict and disputes among countries vying for a greater apportionment of water from their shared rivers. However, as demand rises, the numbers of water agreements increases.

In the context of this research, quality cooperation is reached when the strategic actions of rational actors at the macro level result in (a) systemic and measurable outcomes at the micro level; (b) the use of hydrology rather than territorial administrative, economic, or cultural boundaries to dictate the issues facing the resource, thus forcing states to work together across political boundaries; and (c) cooperative regimes and institutions capable of sustaining positive conflict. Successful, quality cooperation necessitates a new deal between public, private, and civil society sectors and an acceptance that the status quo may not be acceptable, or the status quo has its roots planted firmly in the past, a past that must be reconciled either through cooperation or through conflict negotiation. Thus, how states perceive, protect, or parlay their hydrological interests (and needs) as national interests, in regions where water is scarce

⁶⁶ In *The Management of Shared River Basins*, (Hubert H.G. Savenije and Pieter van der Zaag, eds. 1998), water scarcity is considered as per capita water availability of less than 1000 cubic meters per annum and water stress is per capita water availability of less than 1700 cubic meters per annum. Consistent with their definition is that of Malin Falkenmark's, whose accepted figure for water stress is 1,700 cubic meters per person per year is widely accepted and is used by most hydrologists. Water scarcity occurs with 1000 cubic meters or less per person per year.

and shared, becomes increasingly important to the exercise of state power in the negotiation of TRA, their effectiveness, and the resulting quality of cooperation.

Chapter 2 – The Politics of Cooperation

Introduction

Without a clear understanding of the problem needing resolution, conflicts over water or transboundary watercourse agreements may be proxies for a set of underlying political issues, such as territorial integrity, asymmetry of power, resistance to hegemonic riparian domination (hydro-hegemony), or competition for development. These conflicts are rationalized using rhetoric based around resource control, but really bring out much larger concerns. The measurement for assessing the effectiveness of conflict resolution rhetoric should be based on how the cooperative regime, i.e. transboundary watercourse agreement, contributes to the solving the whole problem.

In many instances, countries that depend on water originating outside of their respective sovereign borders or territory may be equally dependent upon effective treaties and the goodwill of upstream countries. Alternatively, countries dependent upon water originating outside their sovereign boundary may rely on the politics, strategic generosity, or self-interests of the basin hydro-hegemon. The country that controls the water supply/resources of its co-riparians can exert formidable power. If water cooperation is to last, water allocation will need to be addressed. In instances where stronger nations, i.e. hegemon such as South Africa in the SADC region, the potential to exploit power advantages may explain, in part, the high level of involvement in bilateral and multilateral agreements.⁶⁷

⁶⁷ In Africa, there are three states considered regional and, to some extent, continental hegemon-Egypt, Nigeria, and South Africa. Independently, at least one of those states is involved in more than 55 percent

The hydro-political and geo-sovereign dynamics where water is scarce, and likely to become scarcer, make international (basin riparian) disputes inevitable, and thereby increase the likelihood of conflict. When compounded by strong political pressure, unilateral action urging a riparian country to aggressively secure and protect its water rights within shared transboundary watercourses can exacerbate tensions between riparians. Resource conflicts become inevitable when multilateral agreements combine with multiple state agendas and water needs. The concerns of the individual states involved overshadow any attempt towards unilateral action.

Although political historians and scholars have suggested strongly that states are more likely to cooperate rather than resort to violent conflict in situations of water scarcity, transboundary water cooperation requires a more politically nuanced approach. Because of this, it must address the differential power relations that exist between riparian states. There are numerous instances where conflicts about water have acted as a military target or political tool.⁶⁸ Additionally, a serious engagement with the literature must address the differential power relationships that exist among stakeholders, communities of interest, and riparian states as well as the role power plays in transboundary water cooperation and conflict. This engagement should begin with an examination of the role of sovereignty in creating and continuing transboundary water conflicts.

Sinai Netanyahu and Richard Just identify sovereignty as an obstacle to transboundary watercourse cooperation. Because protection of absolute sovereignty is in

of Africa's substantive transboundary water agreements. South Africa is signatory to almost 30 percent of the continent's transboundary water agreements.

⁶⁸ Gleick includes this chronology in his biannual reports on freshwater resources.

a country's best interest, it is not likely "to accept a decision made by a third party from outside a basin or (my emphasis) dictated by a basin-wide planning commission whenever the decision would decrease that country's rights in the river basin."⁶⁹

In some situations, geographical position of a riparian becomes an important factor for contested water issues. However, if an upstream riparian can enforce its status through economic and military power, its interests may take precedence. Riparian position does not necessarily give an upstream riparian hydrological advantage with respect to either water diversion or domination of water allocation. Water domination that threatens other riparians must be perceived as a credible threat, capable of being "backed up with, among other things, financial and technical abilities."⁷⁰ Upstream riparians tend to argue for "absolute territorial sovereignty," based upon the concept that a state has the right to utilize its resources, especially water, within its boundaries and without regard to downstream water needs.

LeMarquand

In his seminal work, LeMarquand⁷¹ developed a conceptual framework to analyze international river cooperation. This framework incorporated hydrologic, economic, and political aspects. LeMarquand identifies three major sets of factors: hydrologic-economic, foreign policy, and domestic policy-making. Each condition includes several variables establishing general patterns shaping the incentives and disincentives of cooperation.

⁶⁹ Just and Netanyahu, 10.

⁷⁰ Ibid., 11.

⁷¹ LeMarquand, *International Rivers: The Politics of Cooperation*, 1977.

To support his fundamental position, that economic incentives greatly explain and underlie the basis for transboundary watercourse cooperation, LeMarquand offers two dominant themes as a basis for cooperation analysis: hydrologic-economic incentives and foreign policy incentives. The hydrologic and economic sets are a necessary condition for cooperation. The foreign policy aspect, which is affected by domestic policy and consensus, will either corrode or enhance cooperation. Within each of these major sets, LeMarquand identifies several sub-factor sets. Several of these sub-factors are germane to this discussion. He makes clear what factors he considers important, but doesn't depend upon them to argue the larger argument about how these factors shape water cooperation or conflict, only that they are considerations.

LeMarquand argues that the pattern of riparian relationships are defined most usefully in terms of common property resources, wherein the river is the medium by which the actions of one country, such as water abstraction, flow regulation, or pollution, take effect in other basin countries. He writes that, "all international rivers can be regarded as common property resources."⁷² While a discussion of common pool resources theory is of growing importance to the field, neither this nor a discussion of transboundary (international) river resources as common property resources fall within the scope of this discussion. Here, I want to address the weaknesses in LeMarquand's framework.

It is inconceivable to expect quality cooperation or a venue where positive conflict may occur if riparian states are unable to reconcile those issues about which they can exercise restraint, negotiate, or compromise. To some extent, any agreement to

⁷² See Elinor Ostrom's work on common pool resources.

which a nation concurs imposes some limits on sovereignty and restricts a state's ability to act unilaterally. All things being equal, a riparian state would be expected to choose to retain its independence and resist transboundary water cooperation, unless its riparian position or asymmetry acts as motivation for participation in a cooperation agreement. In short, the costs of cooperation must exceed the cost of not cooperating. However, there are often other unknown motivating factors, such as the shadows of the past or hydro-hegemony.

In the context of this research, quality cooperation is reached when the strategic actions of rational actors at the macro level result in: (a) systemic and measurable outcomes at the micro level, (b) hydrology rather than territorial administrative, economic, or cultural boundaries dictating the manage-scale of the resource, thus forcing states to work together across political boundaries, and (c) cooperation regimes and institutions capable of sustaining positive conflict. Successful, quality cooperation necessitates a new deal between public, private, and civil society sectors, a reconciled past, and an acceptance that the status quo may not be acceptable.

LeMarquand does not consider the presence of a hydro-hegemon or the power of a riparian willing to cooperate but also willing to prevent the establishment of other coalitions. More importantly, he neither incorporates the significant impact that history (shadows of the past) may have on cooperation and conflict, nor orders his framework into a hierarchy of factors. Certain factors may pose a greater barrier than others to cooperation. According to Dinar,⁷³ another potential drawback of LeMarquand's

⁷³Dinar in Saleth and Dinar, *The Institutional Economics of Water*.

framework is its lack of quantitative measurements for the various factor sets and variables used.

Under the hydrologic-economic conditions influencing transboundary river cooperation, LeMarquand identifies four issue areas: (1) public goods; (2) common pool resources; (3) integrated development opportunities; and (4) upstream-downstream conflict. According to LeMarquand, each issue area has several economic-based incentives and varying degrees of benefits resulting from cooperation. There are also shared political incentives and benefits for the riparian states involved in the agreement. Axelrod refers to such mutual incentives as reciprocity.⁷⁴

LeMarquand's sub-issues for both the hydrologic-economic and foreign policy categories offer a practical approach to organizing a discussion on benefits or incentives for cooperation among countries that have agreed to multilateral environmental agreements, and in particular transboundary watercourse agreements. If the benefits or incentives to cooperation can be disaggregated in some useful form, they might become an indicator of measuring success.

An important subset of LeMarquand's hydrologic-economic issue area is *Upstream-Downstream Conflict*. This type of conflict is particularly relevant to discussions of hydro-politics, due to the primacy of geography and hydrology in framing the boundaries of the issues involved. When an upstream country intentionally uses an international river to the detriment of the downstream riparian, and the downstream riparian has no political, economic, military, or other reciprocal power over the upstream country, the incentives to cooperate are greatly diminished. Under this scenario,

⁷⁴ Axelrod, *The Evolution of Cooperation*.

LeMarquand posits that: “A state that takes advantage of its favored position on a river has no real economic incentive to alter its behavior. Consumptive use of the river’s waters, flow regulation, and waste disposal by an upstream riparian are examples of water use that lead to upstream-downstream conflicts.”⁷⁵ While LeMarquand primarily focuses on economics, an economic perspective is only one approach of several possible interpretation; politics, power, and even water scarcity all may influence cooperation. If basin states are viewed as an economic unit so that the physical effects generated in one country can be passed on via the river to a neighboring country, the aftermath of these effects can be regarded as an economic externalities.⁷⁶ Under this scenario, controversies over shared international watercourses arise from questions concerning the distribution of externalities. This type of controversy often *involves* conflicting national interests, but the rhetoric surrounding it is, by necessity, based around the geographies of sovereignty.

Regardless of the incentives, one irrefutable elemental issue regarding the success or failure of agreements, of course, is related directly to the types of controversies (or types of behavior) over shared transboundary watercourses that cooperation agreements are attempting to address. What are the problems, and for which riparian state does the problem create the most difficulty?

LeMarquand strongly asserts that geographic position, i.e. being upstream, is an important advantageous factor, especially when an upstream riparian can take advantage of its upstream position. However, there are situations where an upstream country may not be able to take advantage of its favored riparian position, which might also lead to upstream-downstream conflict. In the case of the Nile and in the Orange-Senqu River

⁷⁵ LeMarquand, *International Rivers*, 10.

⁷⁶ *Ibid.*, 8.

basins, the upstream states of Burundi and Lesotho have neither the position nor the capacity to exploit their respective rivers.

Geographical configurations are important, as they may be perceived as part of either the solution or problem. In some instances, however, the geographical territorial configuration may be intertwined, or even undecided. In these cases, the hydrologic configuration may take on greater importance. Under those circumstances, the hydrologic configuration may not be as much about the water resource, as it is about sovereign territorial integrity or access to resources. Again, it is important to recognize that the negotiation, development, and content of transboundary water agreements may have little to do with water conflicts, except as a means to generate an alternative platform for resource control discussions which have more to do with territorial integrity.

The Orange-Senqu River in southern Africa is one example of a river conflict where the riparians conflate a water conflict with issues of territorial integrity. The basic hydrologic configurations of up-stream and down-stream and boundary relations of the Orange-Senqu River are quite apparent. The river itself begins in Lesotho, a geographically small landlocked country surrounded completely by South Africa. Lesotho is considerably less developed than its Orange-Senqu River co-riparians of South Africa, Botswana, and Namibia. From Lesotho, the river flows into and through South Africa. However, before it empties into the Atlantic Ocean, the Orange River is a boundary river between Namibia and South Africa.

Each of the riparians in the Okavango and Orange River basins understands the importance of hydrological security to their respective states, and the need to engage in bilateral negotiations and arrangements both within existing multilateral frameworks.

Namibia, the most arid and water scarce of all the riparians in both river basins, is aggressively sharpening its hydro-political skills and negotiating within the multilateral river accords and agreements. It is also negotiating independently with Angola on hydro-developments along the Kunene (Cunene) River and making efforts to increase its market share of exports (bilateral trade). This economic push is especially apparent in the southern provinces of Angola that border Namibia, where there are cultural and historical ties.

LeMarquand cites five sub-factors regarding foreign policy. They are image, international law, linkage, reciprocity, and sovereignty. Sovereignty is a critical sub-factor within LeMarquand's international relations conditions. Ecological politics challenge the concept of state boundaries, on the most obvious level, as environmental concerns in such forms as acid rain, hazardous wastes, polluted waterways, move effortlessly across terra firma-based state boundaries.⁷⁷ However, sovereignty remains a primary obstacle to deep quality cooperation and successfully implemented multilateral environmental agreements (MEAs) and, more importantly, transboundary water agreements (TWAs).

Basically, LeMarquand⁷⁸ posits that sovereignty is an obstacle that is most likely to give a country pause when considering an international agreement, to the extent that such an agreement may place limitations on a nation's ability to act independently, without consideration of its downstream riparians. By entering into an agreement, a

⁷⁷ Khuels, *Beyond Sovereign Territory*.

⁷⁸ There are others who agree with LeMarquand's position regarding sovereignty, including Just, Netanyahu, Warner, and Susskind.

country may experience what Ruggie refers to as an “independence cost”, “the general loss of independence or loss of control over one’s own activities . . .”⁷⁹

This is of particular importance in the context of shared watercourses as it goes to the fundamental debate: to what extent can a country use its waters as it pleases and to what extent must an upstream country make provisions for equitable distribution of shared waters?⁸⁰ This question arises in issues of general use, international law, and conflict resolution over shared water resources. More importantly, this question neatly combines issues of water with issues of sovereignty. Water allocation is often at the center of water conflicts and cooperation debates.

States have more than a marginal interest in controlling what crosses their borders, legally or illegally. Thus, claims of sovereignty and the ability to exploit localized resources are the prevailing positions of states when it comes to shared natural resources. Nonetheless, governments have moved to create numerous formal interstate regimes to protect and manage transboundary localized environmental resources like transboundary rivers. This has been particularly the case among states in the Southern African Development Community (SADC). While international institutions promote greater concern for the environment in developing countries, such agreements should also seek to improve the capacity of governments.

Image is important as each state wants to be seen as a *good* neighbor and as projecting a model of cooperation. Equally important is the desire on the part of the state to be accepted and considered a member of the global community of states. Therefore,

⁷⁹ Ruggie, quoted in LeMarquand’s, *International Rivers*.

⁸⁰ This long standing debate continues despite the principles contained in many UN Conventions, the Helsinki Rules, Agenda 21, Chapter 18, and so forth.

accepting and ratifying a set of international principles governing the use of international rivers suggests a positive attitude toward international law principles applicable to transboundary watercourses, even if they are disinclined to abide by certain principles in basin specific agreements on terms other co-riparians would consider favorable. Lastly, agreeing with a co-riparian on a matter related to shared water resources may be an attempt to woo that riparian in an effort to gain concessions for some other multilateral or bilateral agreement, such as favorable trade terms or support for an international coalition organized to take an action against a third party. While each of these factors may seem independent of one another, there is considerable overlap among them.

With regard to *image*, Morgenthau⁸¹ states that the desire of one country to make a favorable impression on another “may be an important or even decisive weight, as compared with all the other factors to be considered in the formation of foreign policy.” LeMarquand⁸² suggests that the image a country wishes to project can be important in part because national attitudes may positively or negatively influence a country’s willingness to cooperate with its riparian neighbor. It has also been suggested, especially with regard to relatively new states (developing states in particular), that entering into multilateral environmental agreements (MEAs) may also be related to *image*. In this instance, the “*image*” is one of perception, where developing states engage in MEAs, in part because such behavior is an indicator of a “mature” state and is therefore exemplary of how states are supposed to behave.⁸³ Alternatively, these states may be acting in response to extra-state pressures, enticements (financial aid or supported academic or

⁸¹ Morgenthau, *Politics Among Nations*.

⁸² LeMarquand, *International Rivers*.

⁸³ Swatuk and Chayes and Chayes have all discussed the impact of image on state actions. Swatuk and Black’s anthology *Bridging the Rift: The New South Africa in Africa* and Chayes and Chayes’ *The New Sovereignty* both develop this issue more thoroughly.

research interests) to enter such agreements, or as the result of increased global economic and ecological interdependence. Therefore, SADC member states are sensitive to changes in others and more vulnerable to external pressure, like all global actors to a greater or lesser degree.⁸⁴

LeMarquand also discusses the importance of linkages, which enable agreements on one issue, such as favorable trade conditions, in exchange for cooperation on other issues, such as an international river scheme. However, whether to link or de-link issues can become challenging. One approach toward agreement making and enhancing cooperation is to link issues to a set of mutually advantageous concerns that normally would not be available under alternative circumstances.⁸⁵ As a result, it is posited that actors would make concessions on those issues about which they care little, and agree to agree on those that are important. In this way, the riparians have expanded the number and types of trade-offs and potential benefits of cooperation and agreement formation beyond water issues. As is evident from the Transboundary Freshwater Dispute Database, as many as 43 percent of treaties include linkages to non-water issues. Still, the complexity of many issues may not lend themselves to a basin-wide scale, especially where the operating assumption is that water *is* the central issue.

LeMarquand's case studies and framework are applied exclusively to Europe and North America, specifically the United States and the United States and Canada, and do not involve an internationalized river system. In this research, I am attempting to apply his theoretical framework to transboundary river cooperation in the African Continent

⁸⁴ Keohane and Nye, *Power and Interdependence*.

⁸⁵ Susskind, *Environmental Diplomacy*.

with particular emphasis on multilateral cooperation agreements for the Orange-Senqu and Okavango Rivers.

LeMarquand suggests that economic and psychological motivation for reciprocity is important. In the SADC region, however, transboundary water pollution is not yet a deciding factor in industrial competitiveness. Water quantity, however, is a factor influencing the types of agricultural production, especially production of so-called “designer crops”, such as grapes for export to Europe and wine-making. These high-end agricultural investments might influence economic development and trade among several SADC nations, in particular Namibia and South Africa.

According to LeMarquand, the economic incentive for *integrated development* increases benefits to several basin countries because such development often results in economies of scale over the benefits of an individual national state development action. Construction of dams for flood control, power production projects and other infrastructure forms of river management are examples of development actions (other integrated development examples not discussed by LeMarquand might be expanded to include wetland restoration or pollution mitigation measures.). While these types of actions often result in benefits and willingness to cooperate, the net benefits either country can achieve through independent action must be less than those achieved through a cooperative effort. Basically, the costs of cooperation must be considerably less than the costs of not cooperating, and the net benefits of cooperation must exceed any benefits each riparian might otherwise achieve independently in the absence of a cooperation regime. Even when these conditions are met, LeMarquand is quick to point out that there are frequently “difficulties in working out an equitable division of costs and benefits.

This problem is further complicated by the wide range of alternative schemes of development that can be drawn up for most rivers, each of which entails a different distribution of benefits and costs.”⁸⁶

The Lesotho Highlands Water Project (LHWP) appears to demonstrate what LeMarquand would define as an *integrated development opportunity*. The LHWP is a phased hydroelectric dam-power-water supply assembly of construction projects being constructed in the Kingdom of Lesotho, in the highlands of Lesotho on the Orange-Senqu River. Calculated and funded by South Africa, the LHWP was designed almost exclusively for the benefit of South Africa. For Lesotho, the principle cooperation incentive is financial compensation, as well as electric power that it might not otherwise be able to produce for itself.

LeMarquand focuses on a development undertaking financed by an upstream country that results in the provision of accidental external benefits for a downstream state. Under his scenario, dam construction for flood control provides benefits for downstream countries for which the upstream country will not receive compensation unless there is an agreement. In such an instance, an upstream country might be reluctant to go forward with its project if it cannot obtain reasonable and fair compensation for the benefits that would be received by downstream riparians. In contrast to LeMarquand’s example, the LHWP dam system in Lesotho is designed almost exclusively for the benefit of the downstream country—South Africa. Lesotho eagerly participated because, in this instance, the principal incentive for cooperation is the payment that Lesotho receives from South Africa.

⁸⁶ LeMarquand, *International Rivers*, 10.

While LeMarquand's work is flawed and does not engage with water issues in Africa, a review of his oeuvre is useful; the broad issue categories he identifies not only provide a useful lens for analysis but also act as a foundational text for many other authors.⁸⁷ Further, even though his treatment is flawed, LeMarquand did argue that economic incentives exercise considerable influence in hydro-political cooperation. This research recognizes that states are more likely to cooperate only if the cost of cooperation is significantly less than the cost of not cooperating. Here, I'm merely expanding LeMarquand's definition of costs to encompass a range of effects considerably broader than simple economic incentives. In this analysis, costs may include a loss of sovereignty or a state having to sublimate its state water development plans to a schema orchestrated through a regional river basin organization.

Under those circumstances, economic externalities form an important underlying basis for all incentives for transboundary watercourse agreements and cooperation, but factors influencing one country's willingness to cooperate will be different than another's, and are not limited to the economic. Moreover, agreements may not lead to improvements among riparian relations.

Although discussed in more detail in Chapter 3 ("The Case of the Okavango River Basin"), Namibia's purported water diversion of the Okavango River upstream from the downstream Okavango Delta in Botswana is an example of conflicting national and international interests. Conservation of the Okavango Delta has become an international cause, as well as one of national economic and environmental importance to Botswana. However, over time, the national water interests and needs of Botswana, an

⁸⁷ See, for example, Just and Netanyahu, Wolf, and Dinar.

arid state, and those of Namibia, an extremely arid state, may override any international interests to preserve and protect the Delta, notwithstanding its importance to the national economy of Botswana as part of its tourism industry.

Attitudes about and recognition of *international law* are, according to LeMarquand, closely related to *image*, as described above. *Image* is established through states appearing to play nicely while on the international field. For example, the international *image* of SADC states is assured if one counts the number of agreements to which they are signatories. In addition to regional specific watercourse agreements, the SADC states modified the 2000 Protocol to recognize the international water law principles, including the 1966 Helsinki Rules on the Uses of the Water of International Rivers and the 1997 UN Convention on the Law of the Non-navigational Uses of International Watercourses .

Those international conventions significantly affected the content and wording of the regional agreements. As will be described in Chapter 3, the Law on the Non-navigational Uses of International Watercourses was one of the factors that resulted in the Original Protocol being revised. Such evidence suggests that there is a consensus on the principles of international water law among countries in the SADC region. Another indicator of recognition of international law is the example of Botswana and Namibia agreeing to appeal to the International Court of Justice in 1999 on a dispute involving territorial claims and ownership, of Sedudu/Kasikili Island in the Zambezi-Chobe River and access to water.

Linkage can be beneficial to multiple sides of a watercourse it wishes to protect or, as previously discussed, a mechanism to satisfy some other domestic, social,

economic, or national objectives. As LeMarquand noted, agreements that provide for recognition of a river as a boundary or even make provision for future cooperative use of a shared resource may have little to do with the river and more to do with a “. . . nation’s attitude toward international law”.⁸⁸ As a result, nations may establish an international law or new boundary, which may help to meet “core objectives” regarding a country’s territorial integrity or international reputation.⁸⁹ This is especially common after wars. Under more stable conditions, however, international river agreements are generally more concerned with substantive solutions to problems associated with a shared resource rather than with using the agreement as a vehicle to reinforce territorial claims”.⁹⁰

However, for many postcolonial states, sovereignty is problematised. In these developing states, particularly those in Africa, administrative structures are weak, states lack capacity, and often the development agenda originates outside the state. Further, there may be economic incentives, including foreign investment or other pressures that often coerce these states to behave in a certain way. In short, “International organizations may mediate state interaction by providing rules of the game, supplying information, monitoring behavior, or creating transparency; ultimately, however, they are understood to be creations of states and servants of state interests”.⁹¹ While LeMarquand argues that there are both incentives and barriers, his definition of the barriers lacks a hierarchy in order to better understand cooperative dynamics and possibilities. LeMarquand recognizes the difficulties of achieving international river basin cooperation, identifies

⁸⁸ LeMarquand, *International Rivers*, 12.

⁸⁹ LeMarquand cites the United States’ 1971 agreement to build a desalting plant to treat irrigation waters flowing from the United States (U.S.) into Mexico as an example where the U.S. action demonstrated its willingness to protect its relations with Mexico and the rest of Latin America.

⁹⁰ LeMarquand, *International Rivers*, 11.

⁹¹ Finnemore, *National Interests In International Society*, 23

multiple factors that condition agreements, and attempts to provide an understanding of the process with his case studies. However, in the list of factors he discusses, he attributes no values as to which ones are more important than others. He merely lays-out “taxonomy of conditions”⁹² and concludes that some conditions either enable or hinder cooperation. He doesn’t make a case for which conditions are more important than others or even if there is such a relationship between factors.

When a state agrees to enter into negotiations or agrees to a TWA, there must be a reason. Even after agreeing to negotiate, a riparian state may then have to agree to political trade-offs, such as conceding part of its sovereignty for greater access to shared water resources. Given how difficult multistate transboundary water cooperation is to achieve, it becomes even more critical to know what factors states consider important, or are less likely to compromise when agreements are being negotiated. It is not just enough to accept that there are conditions or factors, as LeMarquand asserts, without an understanding of which of the conditions are more important than others. My research considers LeMarquand’s conditions or factors and places them into a hierarchy doing just that—explaining which factors are more important and why. If these factors are not addressed TWAs are but modest accomplishments, and fail to achieve a state of quality cooperation where positive conflict is possible.

⁹² LeMarquand, *International Rivers*, 3.

The Pyramid - Hierarchy of Cooperation and Positive Conflict

My research argues that there is a hierarchy to the impediments and achievements necessary for quality cooperation. This hierarchy is organized around recognition and resolution of the various obstacles as actors proceed toward TWAs and meaningful cooperation. Figure 2 identifies and organizes the obstacles to TWAs and transboundary river cooperation, which is modeled after Maslow's hierarchy of needs⁹³. Like Maslow, I place the fundamental issues at the base of pyramid. These essentials must be addressed first.

I use Maslow's triangle to illustrate this from a TWA cooperative perspective (Figure 2). I use this figure to demonstrate the hierarchy of obstacles facing practitioners of quality cooperation. I argue that until the barriers on the first level (sovereignty, hydro-hegemony, etc.) are minimally addressed, meaningful cooperation is substantially less likely. For example, issues of **Sovereignty** are not insurmountable barriers to cooperation, but present a fundamental challenge to successful TWAs. Likewise, the **Number of Countries** sharing a particular basin may be fixed within a particular basin -- however, the more countries, the more challenging it will be to work through the issues and move to the next level and set of challenges. As will be seen, a triangle was insufficient, a pyramid was needed.

The pyramid's design summarizes the similarities and differences among the various research perspectives cited earlier. It organizes the obstacles to quality transboundary water cooperation and suggests, by design, one approach to cooperation

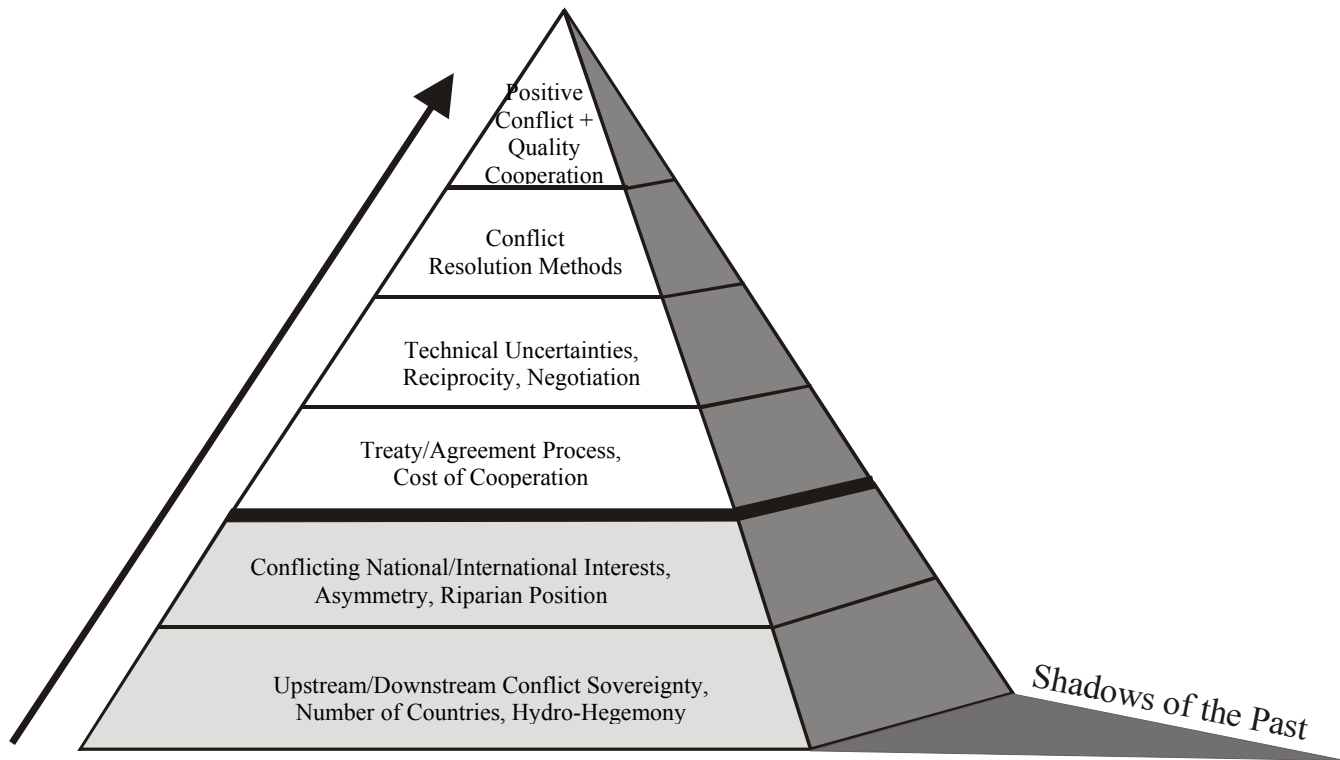
⁹³ Abraham Maslow developed a theoretical framework for the hierarchy of human needs, which placed essential physiological needs such as water, food and shelter at the bottom of the hierarchy as the foundation of daily life which must be addressed *before* self-actualization was possible.

and positive conflict for transboundary watercourses. It illustrates a particular ranking of the obstacles to cooperation and proposes that each obstacle must be addressed state can address other issues on other levels before quality cooperation is to be achieved.

I created this pyramid in order to vividly illustrate what is missing in the literature—a specific hierarchy demonstrating the barriers to cooperation and positive conflict that incorporates an understanding of how history’s (the shadows of the past glimpsed in the pyramid’s backdrop) influence changes as states move toward positive conflict and cooperation. That is, “the past is never past,” but may be negotiated in such a way that it ceases to directly influence cooperation efforts over time.

Securing multilateral riparian state cooperation over transboundary rivers involves overcoming obstacles to cooperation. This research suggests that there is a hierarchy to the obstacles that must be addressed. The most significant obstacles are: sovereignty, number of countries, existing upstream-downstream conflict, and hydro-hegemony. This hierarchy conditions the political atmosphere; acknowledging its existence creates a space where positive conflict can take place without compromising cooperation institutions or threatening riparian actors. Because of its importance to the overall discussion of transboundary water conflict and cooperation and development of TWAs, a more comprehensive discussion of hydro-hegemony will be explored in its own section.

Figure 2. The Pyramid - Hierarchy of Obstacles to Cooperation



It should be recognized that, with few exceptions, the distinctions between obstacles is sometimes blurred, the concepts are interrelated, and overlap between levels is to be expected.

Beginning at the pyramid's base, the levels reflect the conditions that must be overcome before full deep quality cooperation and positive conflict can be reached. Maslow placed basic needs—water, food, and shelter -- at the bottom, and argued that basic needs at the lower levels must be met before higher needs (physical security, social needs, and finally self-actualization) can be attained. This research argues a similar approach for assessing the prospects of full quality cooperation and positive conflict. In *A Theory of Human Motivation*, Maslow argues that “human needs arrange themselves in

hierarchies of prepotency,”⁹⁴ meaning that the satisfaction of one need usually relies upon the satisfaction of another, more “pre-potent” need. He further hypothesized that the desires, wants, and needs of humans are neither discrete nor isolated. This is particularly true of human needs. Each one of these needs is in fact related to the state of satisfaction or dissatisfaction of each one of the others. Most importantly, just listing the ‘needs’ does not sufficiently address either the needs in question or the “specificity or generalizations of the motives to be classified.”⁹⁵ These needs have to be organized into a progressive hierarchy, so that one is able to ‘check off’ the more basic needs as they are met in the journey towards addressing the more abstract wants.

In the construct of my pyramid, I have applied the Maslow’s principles to the politics of hydro-cooperation. I argue that there is a similar political hierarchy in place, and that the ability to advance toward meaningful and quality cooperation is based on the satisfaction of the factors at the bottom level of the pyramid. It would appear, because of the heavy lines and compartmentalization of the factors in the pyramid that the hierarchy of obstacles is fixed and rigid. They are not. There is overlap, as the factors are not nearly as compartmentalized or the lines as impenetrable as they would appear. However, without addressing the factors at the base, reaching sustained quality cooperation is unlikely. Because actors that have enjoyed stability, sovereignty, advantageous riparian position, or hydro-hegemony have experienced that position-condition for such a long time, they may undervalue its impact on other actors seeking the same. These less powerful actors may be acutely more aware of their need to resolve

⁹⁴ Maslow’s “Theory of Human Motivation” was published originally in *Psychological Review* in 1943. It was reprinted in a book by Philip Lawrence Harriman, *Twentieth Century Psychology: Recent Developments* in 1946. This line can be found on page 23 of Harriman’s text.

⁹⁵ *Ibid.*, 23.

or redress issues they may consider a priority higher than quality transboundary water cooperation.

Below, I list the fundamental issues facing states interested in quality cooperation. I describe these as fundamental issues because these concerns impact whether or not states are even interested in coming the bargaining table. Each of the lower levels of the pyramid must be addressed before the next higher level can come into play.

Number of Countries. Just and Netanyahu⁹⁶ as well as Turton⁹⁷ argue that the performance and potential success of multilateral cooperation is negatively correlated with the number of actors. The higher the number of actors involved, the more difficult it is to negotiate multilateral agreements or achieve cooperation. Thus, bilateral TWAs are likely to occur at a higher frequency than multilateral arrangements. Accordingly, multilateral agreements on non-trivial matters for transboundary river basins are the rare exception rather than the rule.⁹⁸ Even in Hardin's classic case of the "tragedy of the commons" he argues that incentives to reach agreement are more difficult if the number of herders is large. Because the number of signatories to an agreement impacts whether or not that agreement will even be signed, the number of actors involved is a fundamental issue needing to be addressed.

Sovereignty. Protecting a nation's absolute sovereignty is always considered in a country's best interest. Few states are likely to accept arbitrary decisions made by an actor or actors (either another state or international institution) outside the state that may

⁹⁶ Just and Netanyahu, "International Water Resource Conflict."

⁹⁷ Turton, Meissner, Mampane, and Seremo, "A Hydropolitical History of South Africa's International River Basins."

⁹⁸ An empirical work on large regional multilateral organizations by Russett and Sullivan, cited in Just and Netanyahu, showed that the performance of twenty multilateral organizations correlates negatively with the number of states being members.

prescribe behavior reducing a state's rights in a river basin, especially if doing so is contrary to that state's national interests. Unless a state believes its sovereignty will be respected, it is unlikely to even enter negotiations regarding water rights.

Upstream-Downstream Considerations and Conflict. Cooperation becomes increasingly difficult when upstream riparians unilaterally determine to use their position to divert or pollute, or otherwise significantly reduce the quality or quantity of water resources available to downstream riparians. Over-consumption of water resources by an upstream riparian is also likely to cause conflict and make cooperation more challenging. The immediate travails of geography, and the rhetoric of sovereignty surrounding these issues, can impact whether states are willing to actually negotiate about these issues.

As noted previously, LeMarquand theorizes that upstream states are willing to take advantage of their favored position on a river if there is no economic incentive to alter their behavior, unless there are other intervening considerations such as image. Generally a country that controls the source of water, potentially, controls the negotiation process, except when that country is, for whatever reason, incapable of doing so, as in the cases of the Nile or Orange-Senqu. An upstream country, i.e. the headwater riparian state, must have not only the 'power' to back-up its control, but the technical and financial abilities as well. The Nile River Basin is a classic example of such a scenario; the upstream riparian lacks power and the respective resources necessary to exercise control. Egypt, the furthestmost downstream riparian, actually contributes no water flow to the Nile, and uses in excess of 66 percent of the water, while Ethiopia contributes approximately eighty-six percent of the flow, but is unable to either control or capture the Nile rivers' water to meet its needs.

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Asymmetry. Of the several factors in the next tier up from the base of the pyramid, asymmetry is one of the most critical obstacles in the hierarchy of cooperation. This concept refers not only to asymmetry of power, but to the ability of a riparian to take advantage of such an asymmetry to advance its objectives and interests. Although not all inclusive, the principal types of asymmetry are asymmetric power, like economic, military, or both; asymmetric technical capacity, data resources and reliability; asymmetric ability to anticipate co-riparian's positions, strengths, weaknesses, or strategic shifts; asymmetric ability to corral international resources or form within basin coalitions to its advantage; and geographic asymmetry (upstream-downstream location). Other types of asymmetry recognize that countries have different population densities, national income per capita, water needs and available allocation, and levels of development.

Conflicting National or International Interests. Changing environmental, economic, and political conditions; international pressure or actions from international donors (international financial institutions (IFIs); international non-governmental organizations (INGOs); local or regional stakeholders and institutions; or a country's nationalistic agenda, which may include reconciliation (or retribution) for historical relationships, all reflect potential conflicting national and international interests. As will

be revealed in the cases of the Orange-Senqu and Okavango River basins, South Africa is under pressure, much of which is self-induced, to respond to both national interests, such as protecting its current and future water supply, and international and regional pressure to be a ‘good’ neighbor – or at least a better neighbor than it was during the apartheid era. Part of this historical legacy involves remittance for its past behavior towards its co-riparians.

Erosion of domestic support or political will for TWAs by riparian nations can undermine cooperation efforts. Additionally, IFI support for a particular activity, e.g. water infrastructure, to one riparian over others in the same basin, may result in facilitating national objectives, but erode transboundary cooperation efforts.

Riparian position. Similar to upstream-downstream conflict-related issues, riparian position concerns not only geography, but hydro-politics. Botswana is an example where it has both in two different basins. Riparian position is strengthened if a particular country has several rivers or other water resources to draw from and meet its water needs. Alternatively, riparian position is important if a state can use its position in one river basin to leverage favorable conditions in another. A third scenario where riparian position becomes an obstacle to cooperation is when one riparian considers the river central to its economic dominance, history, water, and energy supply but is not the river’s headwaters or source and is dependent upon an upstream country of lesser power (military and economic) and capability with sovereignty over the river.

Water allocation. According to some scholars, equitable water allocation is the basis of all transboundary water conflict.⁹⁹ Water allocation is generally included as part

⁹⁹ Wolf, “Water and Human Security.”

of transboundary water agreements. Accordingly, of the 145 treaties in the Transboundary Freshwater Dispute Database compiled by Oregon State University, 49 of those treaties specify water allocations. At the time of this research, however, it was less clear if any of the forty-nine treaties had been challenged, monitored, or contained enforcement mechanisms in regard to water allocation.

Every attempt has been made to treat these factors as discrete; however, it is clear that by their very nature they will bleed into one another. The first two tiers of the pyramid, beginning at the base, are the most critical and difficult obstacles to overcome if transboundary water cooperation is to be successful, and ensure quality cooperation and room for positive conflict. Unless the factors identified in these two tiers are successfully negotiated, adequately accommodated within the text of the actual agreement, reasonably enforced, and allow for the distribution of externalities among all basin riparians, cooperation is not likely to occur. Also critical is the need to include a mechanism for conflict resolution to which all signatory riparian states will agree to abide. That is an essential component of the treaty-agreement process, its enforcement, and its negotiation-conflict resolution methods—issues listed on tiers three, four, and five (above the heavy dark line). As mentioned previously, the concerns at the base of the pyramid must be addressed before quality cooperation and positive conflict is possible.

Reciprocity, Cost of Cooperation, Treaty-Agreement Process. To assure success, the benefits and costs for negotiating a transboundary watercourse treaty or cooperation agreement will need to be worked-out to each riparian's satisfaction. Assuming that the sole issue *is* shared concerns about water allocation and that no one riparian will bear excessive cost due to the conflict resolution process, a process for cooperation is possible.

Long-standing riparian tensions, failure to share technology and data, and failure to take into account competing water interests will quickly perhaps undermine the treaty agreement process, thereby increasing the cost (economic and political) of cooperation.

Axelrod¹⁰⁰ and LeMarquand¹⁰¹ both agree on the importance of reciprocity.

Cooperation works best for those in reciprocal relationships, or where benefits are passed on to downstream riparians at no cost or obligation to the downstream country. The upstream country, however, may be a reluctant participant or unwilling to make a cooperation commitment without reciprocity.

Multiple conditions and factors must come together, including the legal principles for water sharing. At this stage, international or regional actors may function as prime facilitators or mediators in support of the development of the relevant TWA or cooperation treaty. Indeed, this research submits that incentives to cooperate may be forced or forged by multiple factors, such as international norms, expectations, or hydrological interdependence. While this research maintains an emphasis on state actors, such as the Political Realist¹⁰² international relations perspective, it deviates only moderately from traditional realism in that it recognizes the transboundary nature of environmental problems. However, fundamental to this research is that environmental issues are a central part of the concepts of the state, sovereignty, territory, national interest, and, to a great extent, the balance of power. Thus, how states perceive, protect, or parlay their hydrological interests (and needs) as national interests in regions where

¹⁰⁰ Axelrod, *The Evolution of Cooperation*.

¹⁰¹ LeMarquand, *International Rivers*.

¹⁰² Again, I am drawing on the definition of realist developed by Kenneth Waltz. See Kenneth Waltz, *Theory of International Politics* (Reading, Mass.: Addison-Wesley, 1979), and Robert Gilpin, *War and Change in World Politics* (Cambridge: Cambridge University Press, 1981) for a more in-depth definition of this concept.

water is shared and scarce becomes increasingly important to the exercise of state power in the negotiation of TWAs, their effectiveness, and quality of cooperation. Many natural resources span political boundaries. The development of international environmental regimes (IERs) represents a particular response by states as an appropriate mechanism to cooperate on the management of transboundary natural resources. However, securing quality cooperation can be difficult, as there are numerous obstacles, including the shadows of the past, and assessing the prospects for successful quality cooperation in a particular context may be more difficult.

By the same token, it is possible that contentious transboundary water relations may weaken in their significance when states develop viable, diverse, and strong political economies, since the lack of a sustainable and reliable water supply can threaten even the most economically viable and diverse states. Having a strong political economy may be a way of addressing that; states with ample financial resources can augment their water supplies indefinitely, at least theoretically.

Technical Uncertainties, Scientific Gaps, Enforcement Limits or Enforcement Capacity.¹⁰³ Agreements cannot be effective if they lack a specific means to be enforced or if monitoring is not included in the language of the cooperation agreement. Monitoring is an essential part of enforcement. However, it can be expensive, technically unfeasible, and impinge on sovereignty. Therefore, as part of the enforcement capability, monitoring must be acceptable to all parties, and have available results that are neither the subject of

¹⁰³ In LeMarquand's *International Rivers*, the comparable factor is "Information Uncertainty."

manipulation or considered generally irrelevant. The present language surrounding water negotiations in the basin offer little in the way of effective enforcement power.¹⁰⁴

Technical uncertainties and scientific gaps contribute to breaches in verifiable data, especially uncertainties with respect to quality and quantity of water. This makes setting set policy and determining best practices difficult. Questionable scientific information raises questions about the reliability of shared data and information. Of course, closing the scientific gaps and resolving technical uncertainties can be expensive, particularly if riparians lack the financial and academic capacity to undertake such tasks. Further, “higher levels of uncertainty”¹⁰⁵ contribute to higher decision costs and jeopardizes opportunities for building trust. It is here that IFIs and INGOs can make a contribution by providing the skills, knowledge, and equipment necessary to build capacity by reducing technical uncertainties. However, it is less certain if their involvement will abate concerns about sovereignty when it comes to providing access to freshwater ecosystems with national boundaries or developing systems where information can be verified and shared.

Negotiation, Conflict Resolution Methods. From an analytical point of view there are several courses of action that may constitute how negotiation frameworks and conflict resolution can be taken into consideration. They become obstacles when one or all of the riparians engaged in the cooperation agreement or treaty process fails to recognize the accepted established conditions for resolving conflict. Again, provided the conflict between riparians is one of water, conflict resolution methods should be specific and contained in the language of the agreement or treaty. If, however, the conflicts and

¹⁰⁴ Just and Netanyahu, “International Water Resource Conflict.”

¹⁰⁵ LeMarquand, *International Rivers*, 22.

disputes are not about water, but instead the agreement is a proxy for some other dispute, its resolution becomes more difficult. The dispute then remains an obstacle to quality cooperation, and reduces the states' ability to engage in positive conflict, as transparency of intent is now absent.

Nonetheless, if the cooperation treaty or agreement offers an inadequate for conflict resolution, regional, continental, and international venues may exist. In the case of southern Africa, there are options at each level. On the regional level is the Southern African Development Community (SADC) which by design has included a tribunal and language for conflict resolution. At the continent level there is the African Union (AU). For riparians wanting an international venue, there is the International Court of Justice (ICJ) at The Hague.

Of course, conflict is expected, as basin riparians will have differing priorities with respect to water supply, management, and development plans. Managing transboundary freshwater resources effectively requires all riparian states to consider all the riparian states and the potential impacts of unilateral decisions. On the other hand, how the conflict is resolved and which is the appropriate venue will depend on the nature of the dispute. If the riparian actors have agreed to accept limited sovereignty, vis-à-vis ratification of the formal TWA, resolving conflicts may be easier, especially if there is a hydro-hegemon that perceives it in the interest of its basin riparians to resolve the conflict. We should understand the hierarchy (Figure 2-The Pyramid) as illustrative of that the first tier as more important than the next, and that each tier implicitly includes conflicting national and international interests, riparian position, asymmetry, and so forth.

Shadows of The Past

“The past is never dead. It's not even past.” From Requiem for a Nun by William Faulkner, 1951.

The review of the literature presented supports multiple types of barriers to conflict resolution; the scholars I have drawn on (LeMarquand, Morgenthau, Keohane, Nye, Just and Netanyahu, Marty, Gleditsch, Susskind, and others) argue that there are economic, international relations, and legislative actions that either encourage or discourage multilateral transboundary water agreements. Even the number of signatories to a treaty can impact its effectiveness.

In addition to sovereignty, Just and Netanyahu put forward a comprehensive list of “obstacles” (quite similar to LeMarquand’s original list) to water resource cooperation¹⁰⁶. Their newer list includes: asymmetric information; scientific gaps and technical uncertainties; enforcement limitations; conflicting national and international interests; asymmetric country characteristics; and upstream-downstream considerations. Each of these limitations has its own corollary; however, neither LeMarquand nor Just and Netanyahu have posited a hierarchy indicating how each must be addressed within a hydro-political cooperation framework. In this section, I intend to identify some specific issues pointing to weaknesses in the previous arguments; chief among them is that history, as manifested in the shadows of the past, influences cooperative and conflicted water cooperation. The literature has traditionally treated states as ahistorical entities. This, however, lacks explanatory power when examined using the SADC countries as the

¹⁰⁶ Just and Netanyahu, “International Water Resource Conflict.”

basis for critique. After all, water agreements are often not about water; they are about history, power, and politics. Understanding the strategic interaction among riparian states as signatories to transboundary watercourse (river) agreements requires a contextual framework. Fundamental to that contextual framework is recognizing and understanding when and under what circumstances the past, hydrological problems, and politics may interfere with the prospects of quality cooperation.

Reasoning behind the shadows of the past—history matters.

Sovereignty, upstream-downstream positioning, asymmetry, and the cost of cooperation are always consistently cited amongst the top five barriers to water cooperation. Although shared history is cited infrequently, the shadows of the past are frequently an obstacle to water cooperation because of politics, policies, attitudes, and events whose origins can be traced to colonial rule over now independent states.

LeMarquand fails to give adequate attention to the shadows of the past and others ignore it entirely. History is important. This is especially the case in Africa, where many states continue to argue whether ‘colonial’ decisions should be taken into consideration in postcolonial political decision-making, especially regarding shared watercourses. The weight of colonial treaties usually depends on what a particular state gains in terms of water access and control, assuming that water is the issue of concern.

Although only a few of these are illustrated in the case studies, there are a several important ways that history impacts present political processes by framing the discourse surrounding knowledge and power. The shadows of the past conditions the factors described thus far in ways that can deeply affect the potential for quality cooperation. This conditioning manifests through:

- the suppression or the democratization of knowledge;
- the realignment of power (where, for example, chiefdoms in pre-colonial non-Westphalian states or specific group of peoples exercised power or control over resources, which is stripped away with colonial rule);
- the devaluing of indigenous knowledge and practices, thereby restricting access, shaping interests and defining stakeholders;
- limits the imagination;
- frames the language of politics;
- enabling or tolerating cooperation (if circumstances were fixed in the past under securitized or imperial/colonial conditions, a hegemonic power, even a hydro-hegemon, can afford to be both forthcoming and cooperative)
- the structuring of identity, knowledge¹⁰⁷, and academic institutions in a particular way (since independence, some of these institutions are being restructured);

These manifestations can create weak states where power is based often on hidden political and economic relationships. When post-colonial states are weak, they are often vulnerable, often struggling with switching from liberation politics and civil warfare to a more stable form of government. Ultimately, a colonial history establishes a geo-political legacy that structures geography, political boundaries, natural resources, and mineral

¹⁰⁷ The ratios of skilled to semi-skilled and unskilled workers, especially in the fields of engineering and science and public sector administration (government) is difficult to explain, except with reference to historical circumstances and, particularly in the southern African region, apartheid.

resource assets. This makes some actors more powerful than others, leading to hegemony, and, in the case of water dominance, hydro-hegemony.¹⁰⁸ The flux of history sometimes requires reordering juridical system and authority in ways that provide for transparency and creating local governing systems where none existed by acknowledging the sovereignty of some states (e.g. Lesotho and Namibia), while at the same denying the sovereignty of other identity groups (e.g. the Caprivi separatists). Even recent history has an impact, as states begin reconstructing civil societies after the large-scale political turmoil.

Generally, weak post-colonial states often resemble their colonial predecessor¹⁰⁹ because national political elites (frequently liberators and revolutionaries turned bureaucrats) adopt Western values regarding modernization, environment, and development, no matter how inappropriate. The hasty struggle to normalize the state and preserve national security frequently results in the construction of single-party or military regimes in order to bring about economic and social change. While there are no military regimes for any of the actors in either of these case studies, Botswana has had a dominant party in power, the Botswana Democratic Party (BDP), since 1965. The BDP was also the party that led the country to its independence. Its leadership resorts to achieving newly established, post-colonial objectives using the old means of operation. In the case of securing water, this means repeating large-scale infrastructure development relying on dams, pipelines, water transfers, and groundwater extraction.

¹⁰⁸ Namibia's capital city Windhoek received formal city status in 1965, and remains the only major city in Namibia, more than three times the size of the country's second largest urban center, Walvis Bay. This is a situation not unusual in African states, as it correlates to the manner in which colonies were settled – usually around resource extraction or coastal areas (shipping ports) or a combination of both.

¹⁰⁹ Josephson, *Resources under Regimes*.

Also, consider the example of the Nile River Basin. Many of the contentious issues concerning the Nile Basin River have their origins in a 1959 treaty agreement between Egypt and Sudan, which was made when most of the Nile Basin states were still British colonies. Under the terms of that treaty Egypt holds the rights to 87% of the Nile, with Sudan holding the remaining 13%. The Nile Basin contains all or part of 10 states, with the arid downstream countries depending upon the Nile for almost all their water needs. At the same time, the several upstream countries have been denied use of the river's resources, and are now demanding a more equitable agreement, as well as greater access and use for their development.

LeMarquand also argues that transboundary water cooperation only concerns water and the long-standing debates surrounding the principles of apportionment and sovereignty contained in many United Nations (UN) conventions. In the sovereignty of transboundary river arguments, four doctrines are invoked to describe sovereignty and control over international rivers. These are the doctrines of:

- (1) Absolute territorial integrity—this establishes that countries cannot induce significant changes affecting other countries because these changes would affect the integrity of downstream countries;
- (2) Limited territorial sovereignty -- this recognizes the rights of downstream countries, and simultaneously guarantees the right of reasonable utilization by the upstream country in the framework of equitable usage by all interested parties;
- (3) The establishment of a community of co-riparian states—this establishes that the integrated river basin development transcends national interest;

(4) Absolute territorial sovereignty -- this doctrine is sometimes referred to at the Harmon Doctrine of Absolute territorial sovereignty.¹¹⁰ Finally, the doctrine of

(5) Limited territorial integrity – this doctrine establishes that every nation bordering a watercourse has the right to use the water flowing in its territory, provided that the use does not harm the territory or interests of other nations. The doctrine recognizes the reciprocal rights and obligations of nations in the use of water. Equitable use means that each riparian in a river basin is entitled to a reasonable and equitable share of water consumption and disposal of pollution.¹¹¹ States downstream have a right to an uninterrupted flow of a fixed quantity of useable water from and upstream state.

In the example of Botswana and the BDP, territorial sovereignty with its geo-political colonial legacy was the actual cause of the conflict between the two countries, not apportionment or access to water. The International Court of Justice (ICJ) ruling came after a long period of debate, intermittent threats of military action, and formal military occupation by the Botswana Defense Force. In the Caprivi sector, there are three islands in the Chobe River and two in the Zambezi whose territorial sovereignty remains contested. By taking this matter to the ICJ, these actors agreed to accept the ICJ ruling.

¹¹⁰The Harmon Doctrine is named for U.S. Attorney General Harmon, who rendered the 1895 decision regarding the Rio Grande (Rio Bravo) river shared between the United States and Mexico, where he determined that the U.S. was neither responsible nor obligated to consider the adverse effects on Mexico when it (U.S.) used and diverted water from the river. As a result the Harmon Doctrine has come to mean that an upstream nation may use any amount of water flowing into its territory with no regard to adversely affected downstream nations.

¹¹¹ The Helsinki Rules on the Uses of the Waters of International Rivers, adopted by the International Law Association at the 52 conference, held at Helsinki in August 1966. From the Report of the Committee on the Uses of the Waters of International Rivers, specifically Chapter 2, “Equitable Utilization of the Waters of an International Drainage Basin,” where Article V describes a contextual framework for what constitutes a reasonable and equitable share as it is determined by a set of 11 relevant factors.

In this instance, international water law may be less of a factor than a recognition that this dispute was about territory and interpretation of an existing treaty. The International Court of Justice (ICJ) would lack precedence in such a conversation; no regional or local institution would be able to address this type of *territorial* dispute. Importantly, this conflict also indicates that Botswana and Namibia lack access to a formal regional protocol to address this type of situation—at least, that is the case if this conflict is understood as one of territorial sovereignty. This dispute *is* water-related, in that the islands are the result of dynamic changes in the river systems that form the territorial boundaries, but water is not this dispute’s defining factor. The Orange River dispute between Namibia and South Africa shares many of the same elements as the Sedudu/Kasikili Island dispute between Namibia and Botswana--one of territorial sovereignty and water. These factors further complicate the water-war, water conflict, and water cooperation debates.

An indispensable underlying theory of this research is that for African post-colonial states, the territorial configurations, riparian advantages, physical and governing infrastructure, and institutional arrangements of the present have been shaped almost exclusively by colonial affiliations and the shadows of the past. The colonial past (and the move to independence) may have structured things in such a way that some riparian actors will be more powerful or powerless than others. In this case, as Lowi¹¹² observes, the unequal distribution of power between the riparians may prevent or promote shared actions. I contend that there is hierarchy to river cooperation, and that no deep quality cooperation of shared resources is likely while the core objectives of riparian actors

¹¹² Lowi, *Water and Power*.

remain outstanding, especially if these involve water-related sovereign territorial disputes, which upon resolution would result in shifting power among riparians.

Finnemore¹¹³ suggests that states evolve in an international social context that shapes the direction of change in coordinated and consequential ways, and are reorganized, redirected, and expanded at least in part according to shared normative understandings about what “the state” as a political form is supposed to do¹¹⁴. However, it is highly unlikely that the emergence of transboundary watercourse agreements in the SADC region is merely responses to an international social context as an effort to improve their image. There are many other international demand driven “image” behaviors and issues that SADC states might undertake *if* image and perceived maturity were the key driving factors for transboundary water cooperation in the region.

In an era of global warming and drought as a result of climatic variation, diminished fresh water supply sources may prove to be a serious problem. This almost certainly will create economic turmoil, mass migration, potential court battles, and environmental conflict. Under these circumstances, hegemony (individual state power) becomes more essential to transboundary water cooperation, conflict, or dominance over available supply. The problems of increased demand are but one part of the equation. Distribution of the available supply is another, as in the case of Namibia and other Orange and Okavango basin states. As the water history of South Africa (and that of many other states and nations) posits, Namibia is operating under the assumption that it can engineer its way to water supply.

¹¹³ Finnemore, *National Interests in International Society*.

¹¹⁴ *Ibid*, 35.

Although water-related in both its conflict with South Africa and its dispute with Botswana, Namibia wants its territorial demands adjudicated *and* its water rights secure. For post-colonial states, building infrastructure, providing public services, supplying housing, jobs, and education, reducing poverty, defending territorial sovereignty and establishing an international reputation, may be more important than a river agreement. This is particularly the case in Africa where colonial treaties for shared river resources and boundaries were superimposed to meet the political and economic objectives of former colonial powers.

Research indicates that the ratification of the SADC Protocol has been an important regional accomplishment, and that it has encouraged scientific and academic inquiry on a broad scale. Generally speaking, obtaining signatures to an agreement is no small undertaking. While signing a treaty, protocol, or convention can “take the heat” off the backs of political leaders without requiring them to actually take action, the importance of obtaining all signatories to an environmental agreement should not be undervalued. Although discussed in more detail later, it is important to note that most of the multilateral and bilateral transboundary water agreements in the SADC region and river basin commissions pre-date the SADC Protocol on Shared Water Course Systems.

Democracy, gender equality, education, privatizations, political corruption, transparency, economic stabilization, internecine conflict, poverty, and law enforcement are all issues that SADC states could aggressively pursue to obtain a favorable international impression. However, the SADC chose water as a ‘first’ issue around which to convene, in part because the issue of water among SADC member states is so

important since these states are so water interdependent.¹¹⁵ With so many transboundary water agreements and even with various levels of mistrust,¹¹⁶ the initial impression is that no state within the SADC region is willing to take unilateral actions that may be interpreted as hostile, unilateral, or in violation of international rules¹¹⁷ about shared watercourses and water.

Governments jealously maintain sovereignty over their own stretches of rivers and freshwater resources, especially where water resources are scarce. In such cases, the state draws on the discourse of “national interest” in order to legitimize development of a basin’s resources. In the case of South Africa, there is a gap between the discourse of water-based cooperation and the state’s actions in defense of its self-interest. While its behavior as a riparian is largely supportive of the joint commissions of which it is an active member, national interest dominates South Africa’s position in the Orange River Basin. In addition, the LHWP Treaty contains language that assures SA water interests are actualized and sustained. Meanwhile, Namibia, too, is declaring its ‘national interests’ in not only seeking resolution in the Orange River boundary question with SA, but also in citing established internationally accepted standards for its resolution.

There are also asymmetries that extend to factors beyond upstream –downstream geography and riparian position. Such asymmetric concerns include differences in predisposition for international cooperation among riparian actors, country-specific

¹¹⁵ Based on a 2002 interview with Mr. Phera Ramoeli, then SADC Water Sector Coordination Unit Sector Coordinator.

¹¹⁶ Ashton, 2002 Interview.

¹¹⁷ Developed under the auspices of the United Nations, several principles regarding shared water resources have emerged. These are: the prevention of conflict, thorough information sharing, avoidance of harming one’s neighbors, notions of equality, and reasonableness. These guiding “rules” are detailed in the Helsinki Rules on the Uses of the Water of International Rivers (1966), the UN Economic Commission for Europe Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992), and the UN Convention on the Law of the Non-Navigation Uses of International Watercourses (1997).

factors such as political-institutional capacities, and international considerations such as the state of bilateral relations between regime members or susceptibility of actors to influence of international organizations and non-state issue networks. Consider again the upstream/downstream dynamic involving Ethiopia, Egypt, and the Nile River. As mentioned earlier, Ethiopia contributes 86 percent of the Nile water that flows into Egypt. However, downstream Egypt, the most militarily and politically powerful of all Nile River basin riparians, contributes nothing to water flow but uses 66 percent of the annual 84 billion cubic meters of Nile waters.¹¹⁸

The hydro-hegemons in both the Nile River Basin and the Orange River Basin are downstream riparians. In the case of the Nile, it is not only the hydro-hegemon, but has had its Nile-water benefits assured by treaties. In Southern Africa, again using the LHWP as an example, South Africa is not only the regional hegemon, but is also larger in land-mass, population, more developed economically, and more powerful than Lesotho. But, much of what makes South Africa a regional hegemon is owed to history. It was history that endowed and enabled both South Africa to dominate, manage and control water resources and, to a lesser extent, neighboring riparian states. When negotiating the treaties for the LHWP, one might argue that South Africa was forced to approach Lesotho as an equal, since states become empowered politically when agreements are crafted and signed to address transboundary river basin issues.

¹¹⁸ Dinar and Alemu, "The Process of Negotiation Over International Water Disputes: The Case of the Nile Basin."

Hydro-Hegemony

One of the other issues facing the pyramid as it has been described thus far is that it takes as its base assumption that a nation's power can be seen in its ability cause a particular political event. However, this does not take into account the mechanics of hegemony.

The hydro-hegemony framework, being developed by the London Water Issues Group staff and students of Kings' College, offers a perspective beyond the discourse of behavior change and regime cooperation and shifts the focus to examining the role of the riparian hegemon. With the exercise of hegemonic power, riparian behavior is not the result of an agreement, but directed in ways that have nothing to do with riparian position. Instead, the hegemon can make others do what they would otherwise not do, even though the way to get others to comply may vary from hegemon to hegemon.

Hegemony has both a hard and soft dimension. According to J. Warner, "Insights from the work of Lukes (1974) tell us that the ideational, non-coercive aspect of power is an important one to realize the consent and compliance of hegemonized actors. A basin treaty or contract, based on an enticing vision, can be an attractor, creating a more coherent basin community than a coercive strategy could."¹¹⁹ At the same time by itself, ideology, a soft power, cannot sustain control, as it needs to be strengthened by hard power, such as military might. It is the exercise of different forms of power that enables

¹¹⁹ Zeitoun and Warner, "Hydro-Hegemony."

the hegemonic state to continue and retain its primacy among riparians and in basin politics.¹²⁰

According to Zeitoun and Warner, “Hydro-hegemony is hegemony at the river basin level, achieved through water resource control strategies such as resource capture, integration and containment. The strategies are executed through an array of tactics (like coercion, treaties, knowledge construction, etc.) that are enabled by the exploitation of existing power asymmetries within a weak international institutional context.”¹²¹

According to its theoretical framework, hydro-hegemony “consists of narrowing the weaker state’s alternatives to compliance, when confronted by the stronger party’s demands.”¹²² Therefore, cooperation among many transboundary watercourse relationships results from the disproportionate exercise of soft power by a powerful co-riparian, the regional hydro-hegemon. In the Orange River Basin, with its riparians of Namibia, Lesotho, Botswana, and South Africa, South Africa exercises that role. South Africa exercises soft power in the Okavango River Basin as well, through South African water elites working in concert with Botswanan government support, and its ability to attract international interests and resources. The Okavango River basin riparians are Botswana, Angola, and Namibia, but South Africa has a powerful role.

Transboundary water cooperation relies not only on weaker states having limited alternatives, but also upon the opportunity for those states to having the ability to develop economically, politically, and, in some instances, militarily, in order to improve their water supply options. The general intent of these agreements is to move nations into a

¹²⁰ Ibid.

¹²¹ Ibid.

¹²² Ibid.

position where they can coordinate their actions and politically self-enforce policies and practices that assure fairness, efficiency of use, access to, and the environmental protection of the natural resource. It is possible that the behavioral model for regimes does not adequately address power dynamics by assuming that differences in relative types of power (military-, economic-, and knowledge-based) between actors creates obstacles for effective cooperation. However, hydro-hegemony fills much of that theoretical breach; it is directly applicable to situations where there is “considerable asymmetry of power, control of the water flows is consolidated by the hydro-hegemon; and competition over water is stifled”.¹²³

Neither hydro-politics nor hydro-security issues can be reduced easily into an either-or narrative. Multiple scenarios are possible. For example, transboundary water development may be a strategic bargaining tool to attract international resources, protect another resource, or otherwise exercise control over neighboring riparian states. Transboundary water agreements may also be a strategic ploy to elicit a particular response by a riparian state, like the elimination of a trade barrier or derailing the economic growth of another co-riparian. As a result, one might surmise, that a transboundary water agreement designed to institute or govern certain behaviors might also lead riparians to abandon or restrict other behaviors having to do with hydro-security. Moreover, as stated previously, issues of shared transboundary water resources cannot be separated easily from national security concerns and statehood. The connection between water and energy, as in the case of huge hydro-power infrastructure development is an example of the latter.

¹²³ This is from a pre-publication version of Zeitoun’s 2006 article, “Hydro-Hegemony – a Framework for Analysis of Transboundary Water Conflicts.”

In a scenario where sovereign states are the prime actors, water regime development will depend mostly upon the distribution of power and the respective strategic interests of the regional hegemon. Upstream hegemons may exhibit little interest in the development of water regimes that may result in limiting the upstream hegemon's sovereignty and freedom to act. In contrast, a powerful downstream hydro-hegemon may aggressively support the development of a water regime as part of its effort to secure and stabilize water supply. Thus, the power asymmetry among riparians has the potential to both encourage and impede water cooperation, especially if it coincides with the interests of the basin hegemon.¹²⁴ As will be explained in more detail in the case studies, South Africa functions as the hydro-hegemon in one basin where it is a downstream riparian, and another where it is not a riparian at all. However, in both instances, South Africa exerts pressure and power in shaping basin and regional water cooperation efforts.

Reciprocal trade-offs that act as an incentive to cooperate, however, may translate into high stakes hydro-political gamesmanship. Invariably, states want to demonstrate the extent of their political power. They may choose to demonstrate the extent to their power by cultivating and control over natural resources, i.e. the technological mastery over water, for example, and their ability to link such control to national economic development.¹²⁵ Very simply, water is life. It is also power, economy, development, and security. Control over water, especially in water-scarce states, can become an effective means of consolidating power over others.

¹²⁴ Lowi, *Water and Power*.

¹²⁵ Worster, *Rivers of Empire*.

National interest can be understood in several different ways. Hans Morgenthau defines ‘power’ as the ultimate national interest of the state, but other authors suggest that national interest can include:

1. Riparian specific interests where objectives are geographically based. These interests are derived from its location on the river, the country’s topography and the benefits sought from the river and its resources;

2. An array of internal political and social interests and ‘needs and priorities.’ These interests are specific to each country, where each interest manifests itself in a different way; and

3. Legislative, including formal cooperation structures, treaties, and protocols benefiting the state.

Countries tend to develop, utilize, and exploit water resources based only upon national priorities. With such an approach, even with an overload of transboundary water cooperation agreements and history of cooperation, it is important to recognize that:

- (a) Cooperation can be a coercive force;
- (b) Cooperation is not the absence of conflict;
- (c) Cooperation under duress is not peace;
- (d) Cooperation is often explained as a reciprocal relationship the result of which is prosperity of all involved, and ‘community’; and
- (e) Cooperation requires positive conflict.

Basically, some actors may sustain high costs if there is no cooperation, at the same time others are paying (or sacrificing) for cooperation with little benefit. These circumstances could escalate into conflict or result in not reaching an agreement.

LeMarquand and others suggest that sovereignty is an obstacle likely to give a country pause when considering an international agreement, because to that agreement may place limitations on a nation's ability to act independently. By entering into an agreement, a country may experience what Ruggie refers to as an "independence cost", which he defines as "the general loss of independence or loss of control over one's own activities . . ." ¹²⁶ This is of particular importance in the context of shared watercourses, as it brings out the fundamental debate: to what extent can a country use its waters as it pleases and to what extent must an upstream country make provisions for equitable distribution of shared waters? ¹²⁷

Hydro-hegemony is neither a negative nor positive

The issue of sovereignty might result in one or more riparian nations not wanting to be subject to the scrutiny of other riparians, third-party nations, perhaps an international body, like the International Court of Justice at The Hague. If, however, the riparians have entered into a regional, multilateral, or international agreement that establishes monitoring conditions, sovereignty and other concerns may become less of a limitation.

If the basic concerns of sovereignty, conflicting national interests, riparian position, cost of cooperation, asymmetry, water dependency, upstream-downstream conflict, and issues of hydro-hegemony can be adequately resolved, then other factors can be addressed. Overcoming these basic concerns is a complex challenge; they are not so

¹²⁶ Ruggie, quoted in LeMarquand, *International Rivers*.

¹²⁷ This long standing debate continues despite the principles contained in many UN Conventions, the Helsinki Rules, and Agenda 21, Chapter 18. Each of these documents recognizes the reciprocal rights and obligations of nations in the use of shared water resources. For example, according to the Helsinki Rules, equitable use means that each riparian in a river basin is entitled to a reasonable and equitable share of water consumption and disposal of pollution.

easily dismissed, even in the face of cooperation regimes, basin commissions, treaties, protocols, or international agreements to which riparians are willing signatories.

In the Southern Africa region, numerous multilateral treaties, multilateral river basin commissions, and a multilateral protocol have all been created to address shared transboundary watercourses. The situation only grows more complex when, as in the case of Sub-Saharan Africa, a number of countries are co-riparians on as few as four and as many as twelve basins at a single time. Ten of the major river basins have four or more riparians each. For example, Mozambique is co-riparian in nine different river basins (Table 1). So, while Mozambique may be inclined to act in its own interests, the extent to which it can truly cooperate with any of these other states is likely to severely limited. Its multiple riparian relationships leave it little room for negotiation.

An effective cooperation regime needs a clearly delineated structure in order to facilitate transboundary watercourse agreement and to mediate between the various manifestations of national interest. There seems to be reluctance on the part of most SADC members generally, and the Orange and Okavango riparians more specifically, to agree to set rules on regional shared transboundary watercourse matters. As signatories to international agreements, a more general consensus emerges amongst these riparians, but this consensus is still untested. The reluctance on the part of these riparians to agree to set rules may have important implications for determining the ultimate levels and quality of cooperation. During my fieldwork, I observed that sovereignty (and national interests) was the most frequently cited obstacle to successful agreements, but I believe other factors need to be considered. Asymmetry, technical uncertainties, enforcement limitations, scientific gaps, reciprocity, and the treaty and agreement making process are

factors that must be addressed in some manner if cooperation is to be reached. The preceding discussion and Pyramid 1 represent an effort to organize the obstacles to transboundary watercourse cooperation identified by in a systematic manner. Each of these obstacles must be addressed before cooperation can be reached.

Chapter 3 - The Orange-Senqu River Basin

We've seen conflicts over water throughout history . . . We fight over water. We fight with water resources during wars that start for other reasons. The Middle East is a classic place where water is scarce and the political competition is, as we know, very fierce. So I think that we will see growing disputes over water. Whether or not it's a full-blown war over water, I think there are some serious political difficulties ahead of us.

Gleick told CNBC Morning Call's Liz Claman 2006.

*What we call man's power over nature turns out to be a power exercised by some men over other men with nature as its instrument. C.S. Lewis, *The Abolition of Man*, 1947*

Introduction

This chapter explains the hydro-political dynamics of the Orange-Senqu River Basin (OSRB), and how its riparians interact with one another while simultaneously asserting their sovereignty, guarding their water resources, securing their territorial integrity, and finding opportunities to alter their political behavior in ways that will neither compromise nor jeopardize their national interests, but will instead reconcile their common and individual past histories. Additionally, it will discuss how history influences and dominates the politics of cooperation with the basin and influences the actions of the hydro-hegemon—South Africa (SA). The OSRB story illustrates that the political dialogue about water is often less about water and more about politics, power, and the past.

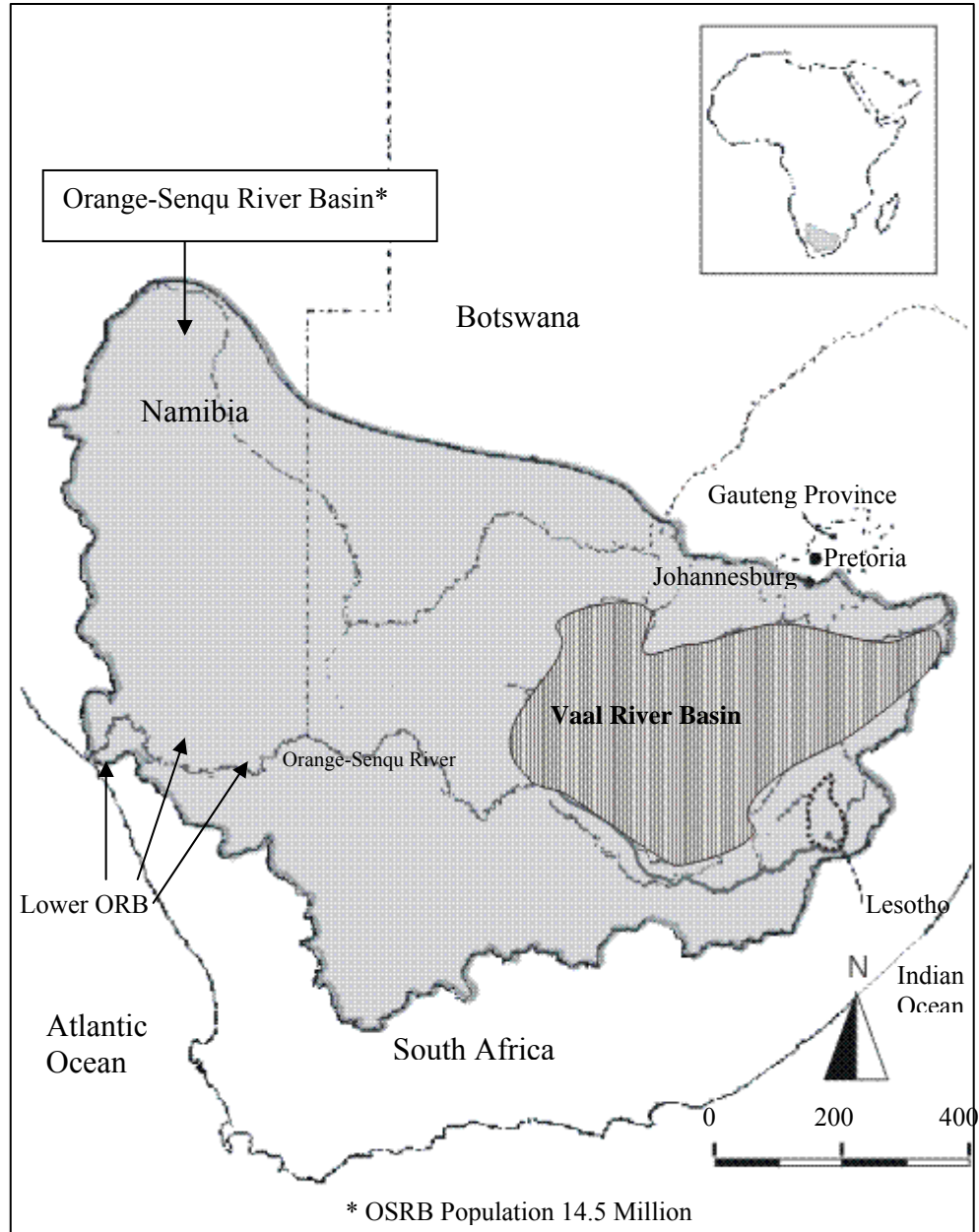
I will talk about briefly the strategic and economic importance of the Orange River to South Africa; South Africa's hydro-hegemonic dominance over the regional headwater states, Lesotho and Namibia; South Africa's continuing efforts to assert itself as a "good" riparian and regional neighboring state; and, most importantly, the continuing hydro-political tension between Namibia and South Africa. I will also discuss the impact

the rivers have on discussions of international borders, and the history of which these discussions partake.

The Orange-Senqu River is shared by three countries: Lesotho, South Africa and Namibia. Based on an ancient hydrological link to the Orange River, the basin also includes Botswana among its riparians. Botswana, however, contributes no flow, makes no water supply demands for the river water resources, and has no ability to tap into the river. Like the Okavango River Basin chapter, this case study begins with an introduction, a brief overview of Orange-Senqu River Basin hydro-politics, and continues with a discussion on the physiography and history of the Orange-Senqu River Basin. That discussion is followed by an exploration of Namibia's political and hydrological relationship with South Africa because it illustrates how history impacts cooperation relationships. This chapter elaborates on the geopolitical and hydrological characteristics of the Republic of Namibia and provides a brief historical overview of the delineation of Namibia's borders, included because that past history helps frame the country's current political perspective and behavior.

Namibia receives considerable attention in this chapter for several reasons. First, it is a hydrological riparian in both the Orange and Okavango River basins with more than just a strategic interest in tapping additional water supply from both. Namibia is the most arid state in sub-Saharan Africa and among the Southern African Development Community (SADC) member nations, so water access and supply are important. Second, prior to its independence, Namibia, then known as South West Africa (SWA), was

Figure 3. Orange-Senqu River Basin by author. Source map from the 1999 Orange River Replanning Study, Department of Water Affairs and Forestry, Directorate: Water Resources Planning, Pretoria, South Africa.



regarded as a de facto colony of South Africa. Like SA, its water was priced and allocated with little regard for equity, economic efficiency, or hydrological constraints or reality. Third, Namibia has had several conflicts that complicate its interstate hydro-politics and its sovereignty. The intent of this chapter is to illustrate the diversity of meanings that Namibia, along with the other basin riparians, lends to the hydro-politics of the region as a way of meditating the shadows of the past.

In the Orange-Senqu River Basin, Namibia's Achilles' heel is its downstream riparian position. This disadvantage is exacerbated further by South Africa's regional economic standing, military dominance, technical capacity, bargaining power, and rarely challenged data-dominance and -quality. This case study begins with an overview of the Orange River hydro-politics, a brief discussion about the physiography and history of the River, and concludes with sections on each of the riparians and their Orange-Senqu River Basin hydro-politics perspective. I include in my analysis some of the observations I garnered while doing my fieldwork in this region, where I was an invited guest at many hydrological conferences. In the course of my interviews, almost all SADC or government officials presented transboundary water cooperation as not only high on the agenda, but also the clearly chosen direction for the region's riparian states.

Orange-Senqu River Basin Land-Uses

The Orange-Senqu River Basin (OSRB) has multiple land uses that vary considerably depending upon which section of the river one is attempting to describe. Also, it is a significantly larger and a far more complex system with higher population densities and larger variety of land-uses than the Okavango River Basin. It includes not

only the entire country of Lesotho, with its population of a little more than two million, but also South Africa's largest city, Johannesburg, which has a population of 3.5 to 4.5 million, and Soweto, the provincial capital of Gauteng, the wealthiest province in South Africa.

Overall the basin has a population of approximately 14.5 million people (According to a 2005 report by the UNDP, regionally produced research suggests the basin population to be closer to 11.5 million). The middle and lower stretches of the OSRB are the least densely populated areas within South Africa and Namibia, with a population density between 1-5 people per km⁻², owing mostly to aridity and large areas of non-arable lands. The lower part of the OSRB, where Namibia and South Africa share a border, is incredibly sparsely populated. Diamond mining and two zinc mines are in operation where the river empties into the Atlantic along the coast, which is also where the Kudu gas fields are located. Additionally, the lower OSR basin includes a 1991 designated Ramsar site at the downstream end of the river. The Ramsar site, where the river meets the Atlantic Ocean, is called the Orange River Mouth Wetland (ORMW). Here, freshwater marshes and de-vegetated salt marshes co-exist along the Namibia-South Africa border region.

Where the Vaal and Orange River flow together, population density increases (to approximately 100 or more people or more per km⁻²) since that area includes the Johannesburg-Pretoria urbanized area. Also in this area of the basin is extensive industrial, mining, and agricultural and livestock activity. However, the development and regulation of the river, the end of apartheid, and increased urbanization has influenced land use patterns over time. One of the many changes is the shift from early non-intensive

live stock rearing close to the river to intensive crop production. Still, in the OSRB stretches of South Africa, significant agricultural activity continues to take place.

In Lesotho, where the OSRB begins, the upper catchment is sparsely populated and occupied by mostly subsistence farming rural families living in villages. The poor soils and hilly-mountainous terrain make the basin land unsuitable for both agricultural production and human habitation. The Botswanan area of the OSRB is sparsely populated as well, owing to the Kalahari Desert, which places little demand on the basins' water resources. As in the case of the Okavango, the Orange-Senqu River basin land uses include national game parks, conservation areas, and infrastructure to support tourism. Like the Okavango River basin, agricultural activity continues to dominate freshwater withdrawal and use.

Orange-Senqu River Basin Hydro-Politics

Several factors make the OSRB an interesting study in hydro-politics. Its politics are an exercise in sovereignty, dominance, control, and securing state borders. Because the Orange-Senqu River forms part of the boundary between South Africa and Namibia, defining this boundary has been a point of conflict between the two riparians since Namibia's independence from South Africa in 1990. For Namibia, the boundary question, like the hydrological one, is less about water and more about sovereignty, economics (mineral and fishing rights), as well as international norms versus those of the African Union (formerly OAS).

The OSRB case also includes examples of hydro-hegemony and engineering mastery. The OSRB contains what is believed to be the largest international interbasin

(IBT) transfer in the world, the Lesotho Highlands Water Project (LHWP)¹²⁸. The LHWP was developed by South Africa to capture water that would otherwise be lost if it flowed unregulated across the border into South Africa. The LHWP's structure takes advantage of Lesotho's higher altitude and lower evaporative rates. South Africa's engineering mastery is also demonstrated by the number of dams and inter-basin transfers (Table 2).

The OSRB is politically complex as well. The multiple bilateral and multilateral agreements for the OSRB exemplify far-reaching water-related cooperation on the part of South Africa within the southern African region, post-SADC Water Protocol.¹²⁹ Most noteworthy of the agreements is the Orange-Senqu River Commission (ORASECOM) multilateral cooperation agreement. Botswana contributes no stream flow to the OSRB, and has no past or existing bilateral regimes with respect to the Orange River basin, but its potential political leverage could be used to influence the behavior of basin riparians in the Okavango to meet its own political and hydrological interests.

Each of the riparians, including Botswana, will have to meet increasing demands for water. Namibia and South Africa both want to increase water extraction the lower Orange River for their own respective economic development, mining, tourism, and agricultural production plans.¹³⁰ For Namibia, Botswana, and South Africa, the availability of water resources is a decisive pre-condition for agriculture. Distribution is also a problem; population and industrial centers tend to be located in areas incoincident with large quantities of accessible water supply.

¹²⁸ DWAF, *Introduction to the Orange River Basin*.

¹²⁹ Earle, Malzbender, Manzungu, and Turton, "A Preliminary Basin Profile of the Orange/Senqu River."

¹³⁰ I received this information from Mr. Piet Heyns, an important member of the water elite in Namibia.

Finally, water is linked directly with the energy-power sector. Through a variety of complex distribution and trade mechanisms, South Africa supplies energy to each of the OSRB riparians. Potentially, energy production and water requirements could have some bearing on energy security for of these riparian states. This is especially true for South Africa, where the water-energy linkage is extensive. Eighty percent of South Africa's electricity requirements are met from Vaal-related resources.¹³¹

According to Piet Heyns,¹³² water scarcity is considered one of the more significant and limiting natural resources when it comes to social, economic, industrial, and agricultural development in the southern African region. However, before considering national riparian interests and perspectives, especially those concerned with the dynamics between Namibia and South Africa, it is necessary to have an understanding of the geo-physical characteristics of the river basin and its history.¹³³

River Physiography and History¹³⁴

The Orange-Senqu River Basin (OSRB) is shared by four riparian states: Botswana, Lesotho, Namibia, and South Africa. The Orange River basin has an

¹³¹ This data is from the Ecologic Institute for International and European Environmental Policy, and was published in December of 2005.

¹³² I heard this during my 2000 interview with Mr. Heyns. Heyns deals with water matters in both the Orange-Senqu River Basin and Okavango hydro-politics, and is the former Undersecretary in the Namibian Ministry of Agriculture, Water, and Forestry. Prior to that appointment, he was the Director of Resource Management at the Department of Water Affairs at the Ministry. Further, he was the official Namibian representative for both OKACOM (Okavango River Basin Commission) and ORASECOM (the Orange Senqu River Basin Commission).

¹³³ Turton, Interview.

¹³⁴ My information on the physiography, background, and history of this region is from multiple sources describing the Orange River. These include the Department of Water Affairs' *Management of the Water Resources of the Republic of South Africa* (1986) and the second edition of Monica M. Cole's *South Africa* (1966). Additionally, a portion of the physical description of the Orange-Senqu River Basin is based on A. R. Turton's (2003) PhD dissertation: *The Political Aspects of Institutional Developments in the Water Sector: South Africa and its International River Basins*.

estimated total population of approximately 19 million people, significantly more than in the Okavango River Basin. It is one of the largest and longest rivers in South Africa, with a basin area that extends over much of the country¹³⁵ and covers an area of approximately 964,000 km². More than 95% of the water in the Orange-Senqu River basin originates in Lesotho and South Africa. Two land-locked nations, Botswana and Lesotho, are part of the OSRB. Surrounded in its totality by South Africa, the entire country of Lesotho is located within the basin, but only five percent of the basin area is located within Lesotho. Lesotho contributes over 40% of the stream flow. Sixty-two percent of the basin area is located in South Africa, 25% in Namibia, and approximately 9% in Botswana.¹³⁶ The Botswana part of the basin is covered by the Kalahari Desert. Much of that area is also part of the Kgalagadi Transfrontier Park. Together with its main tributary, the Vaal River, the Orange River is the main source of water for the central industrial and mining areas of South Africa.

The Vaal River is an important freshwater resource in South Africa. It begins in Mpumalanga Province, and forms the northern tributary of the Orange River in South Africa. The Vaal flows 750 miles (1,210 km) southwest to its confluence with the Orange. As a plateau river occupying a shallow bed, most of the year its flow is minimal. However, during winter months it creates the muddy torrent for which the Vaal (“Gray-brown”) is named. The Vaal River's flow is regulated by the Vaal Dam, 23 miles (37 km) upstream of Vereeniging, where water is diverted into the Hartz Valley irrigation scheme. The river's major tributaries—the Klip, Wilge, Vals, Vet, and Riet rivers—enter

¹³⁵ Earle and others, “A Preliminary Basin Profile of the Orange/Senqu River,” 10.

¹³⁶ Turton and Earle, and national government reports from the South Africa Department of Water Affairs and Forestry in South Africa all describe the river's flow, particularly the replanning study in 1999.

on its left bank. With its waters used for the domestic and industrial needs of the Witwatersrand, the Vaal is serving at full hydro-economic capacity. South Africa's regional, economic, and hydro-hegemonic and engineering dominance provides a useful starting point for understanding the critical importance of the Orange River in the region.

The Gauteng Province¹³⁷ in South Africa is 100% reliant on interbasin transfers of water via the Vaal River System. Turton¹³⁸ posits that the major developments in the Orange-Senqu River Basin were motivated by national interest, with the majority initiated and implemented during South Africa's apartheid era. About a fifth of South Africa's population lives in Gauteng. It generates approximately 34% of the nation's wealth, is the most densely populated and wealthy (on a per capita basis), and is the headquarters location for most of the nation's major, state, academic, research, mining, financial and commercial institutions with some 60% of South Africa's research and development taking place in Gauteng.

More than 95% urbanized, Gauteng Province includes the administrative capital Pretoria, one of the three capital cities¹³⁹ of South Africa; Johannesburg, its provincial capital and the largest, most populous city in South Africa; and Soweto, a southwest black township. In spite of its urbanization, Gauteng, which has retained a significant portion of its land in agriculture, continues as part of South Africa's farming heartland, the "maize triangle." These other factors further illustrate the strategic importance of the Orange-Senqu River Basin.

¹³⁷ Gauteng (Sesotho for "place of gold") is South Africa's smallest province, about 17,000 square kilometers.

¹³⁸ Turton, "Hydropolitics and Security Complex Theory--an African Perspective."

¹³⁹ The other capital cities are Bloemfontein, the judicial capital city, and Cape Town, the legislative capital.

The largest river south of the Zambezi, the Orange is a perennial river with seasonal runoff that varies extremely from one year to the next. The main source of the Orange River is recognized officially as the Senqu River, which rises near the Maluti plateau's eastern edge in Lesotho. In Lesotho, the river is known as the Senqu (Sinqu) River. Its mean annual precipitation changes from more than 2000 mm in the Lesotho Highlands to less than 50 mm in the areas of the rivers end at the Atlantic Ocean. The Seati (Khubedu) headwater rises near Mont-aux-Sources to the north. Still farther north is the lesser-known Malibamatso headwater, one of several dam sites of the Lesotho Highland Project. Its headwaters¹⁴⁰ rise at an altitude of about 10,800 feet above sea level on a plateau formed by the Lesotho Highlands that extends from the Drakenberg escarpment in the east to the Maloti (Maluti) Mountains in the West.

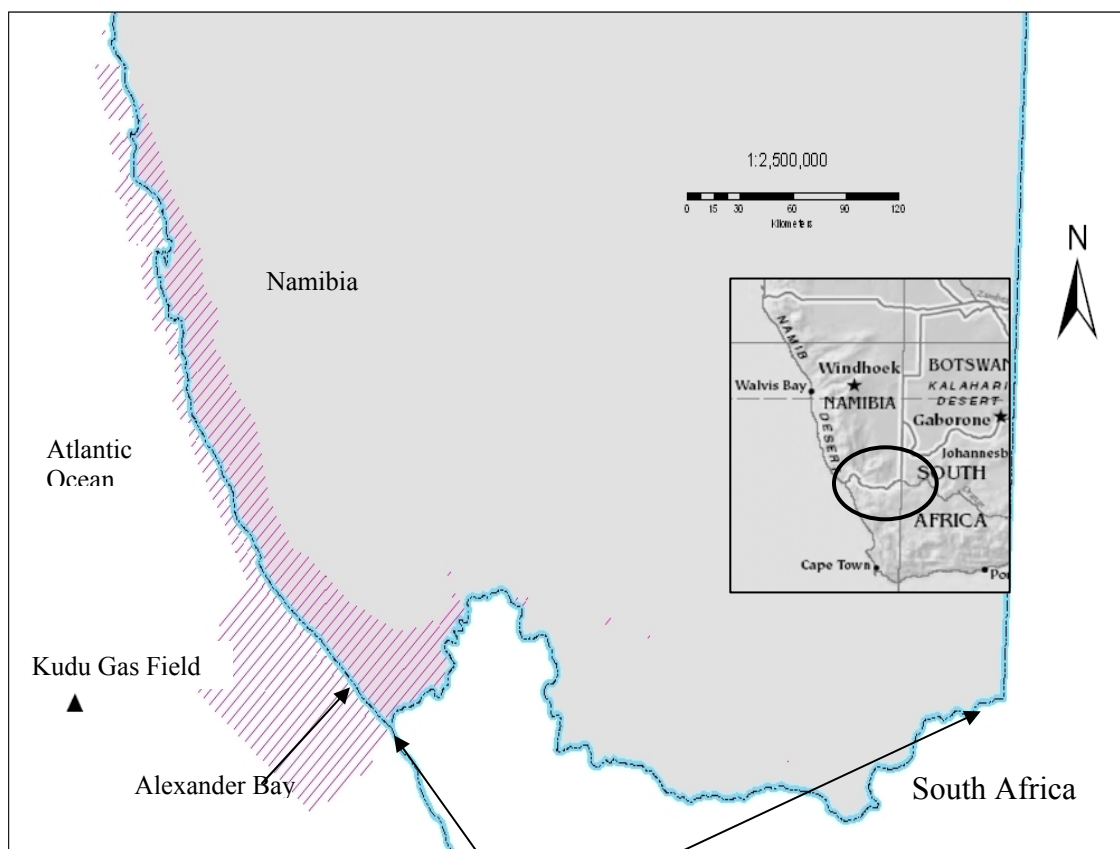
Upon entering South Africa southwest of Lesotho, the river flows south and west through more open country. From the Gariep (formerly Hendrik Verwoerd) Dam the Orange swings to the northwest to its confluence with the Vaal River. The Vaal, which rises in Eastern Transvaal province, flows west through the major population and industrial core (Gauteng Province) of South Africa before turning south and joining the Orange near the town of Douglas. From there, the Orange then turns southwest. Some 20 miles below the town of Kakamas, the Orange, traveling in several channels, forms the Augrabies Falls.¹⁴¹ The lower course of the river, from the Augrabies Falls to the sea, is

¹⁴⁰ The source of the Orange River was first reached by the French Protestant missionaries Thomas Arbousset and François Daumas in 1836.

¹⁴¹ Augrabies Falls is a series of separately channeled cataracts and rapids on the Orange River in arid Northern Cape Province, South Africa. The falls, which form the central feature of Augrabies Falls National Park, were established in 1966. At the Augrabies Falls, the Orange River drops approximately 191 meters. Believed to be a place of active evil spirits by the original Hottentot (Khoi) residents, the loud thundering noise that resulted from the significant 'drop' that formed the waterfall caused the Hottentot

the Gorge Tract. Some of the Orange's most rugged passages are located in the last section of the river, the lower Orange River (Figure 4), as it flows along the Richtersveld before turning west in the direction of the Namib coastal desert.

Figure 4. Map of Namibia-South Africa Disputed Orange-Senqu River boundary, Lower OSR (by author) and Kudu Gas Fields. Original source map reproduced with permission from Ministry of Mines and Energy, 2007, Windhoek, Namibia.



Orange – Senqu River Disputed Boundary
between Namibia – South Africa

(Khoi) residents to name the waterfall Ankoerebis, "place of big noises." The Trek Boers, who settled there later, changed the name from Ankoerebis to Augrabies.

The lower Orange River flows through the southern part of the Kalahari and Namib deserts. As a result, it fails to reach the sea in very dry years. Shoals, falls (Augrabies Falls is 400 ft/122 m high), irregular flow, and a sandbar at its mouth limit navigation, but the river is used extensively for irrigation. At the mouth of the river are rich alluvial diamond beds. The Orange River, the principal conduit for transportation of diamonds from the southern African interior to the Atlantic coast, has within its lower valley two recognized suites of gravel terraces into which part of the transitory diamond population has been concentrated in the lower Orange River deposits.

Less than three miles wide and almost closed by sandbars, the Orange River reaches the sea a few miles north of the little inlet known as Alexander Bay. A poorly populated and most arid region, the Lower Orange River area receives approximately 60% of its runoff from the Fish River, an ephemeral river which originates in Namibia.¹⁴²

Throughout the 19th century, the Orange River marked the northern limit of British power in southern Africa. Beginning in the 1830s, the Boers crossed it in search of land and freedom from British rule; they named their first republic—the Orange Free State—for the river. The first white man known to cross the river to the north bank was an Afrikaner elephant hunter, Jacobus Coetsee, who forded the Groot River, as it was then called, near the river mouth in 1760.

Later expeditions across the river in the 18th century were led by the Afrikaner explorer Hendrik Hop; Robert Jacob Gordon, a Dutch officer; William Paterson, an English traveler; and the French explorer François Le Vaillant. They explored the river from its middle course to its mouth, and Gordon named it in honor of the Dutch house of

¹⁴² Department of Water Affairs and Forestry (DWAf), 2004 Report, 27.

Orange in 1779. Mission stations were established north of the Orange from the late 18th century. In 1813 John Campbell of the London Missionary Society traced the Harts River, and from its junction with the Vaal, followed the latter stream to its confluence with the Orange, which he explored as far as the Augrabies Falls.

Among the OSRB riparians, South Africa is the principal user of the Orange River's water, with approximately 82% of total annual use, which includes environmental flows and inter-basin transfers.¹⁴³ Within SA, the OSRB supports the industrial and commercial region around the city of Johannesburg, where irrigation by commercial farmers dominates most other uses, followed by industrial and municipal water supply to the city.

The OSRB hosts approximately 30 dams—25 in South Africa alone, and five in Namibia. These dams have a collective storage capacity of more than 12 million cubic meters (mcm or Mm³).¹⁴⁴ The largest of these are in South Africa: they are the Gariep Dam (5,600 mcm storage capacity) and the Vanderkloof Dam (3,200 mcm storage capacity).

While South Africa has 25 dams with a storage capacity of more than 12-million cubic meters, Namibia has only five dams storing more than 12-million cubic meters.¹⁴⁵ This storage system makes Namibia particularly vulnerable during periods of drought, since much of its access to water from the Orange is limited to release from upstream dams controlled by South Africa.

¹⁴³ Earle, Malzbender, Manzungu, and Turton, "A Preliminary Basin Profile of the Orange/Senqu River."

¹⁴⁴ This does not include the recently completed Katse and Mohale Dams in the upper reaches of the Orange-Senqu in the Lesotho Highlands

¹⁴⁵ According to Dr. Jenny Day in "The Status of Freshwater Resources in Namibia," the Fish River is the most significant tributary of the Orange River in Namibia, and is dammed by the Hardap Dam.

The Orange River forms the 600-kilometer border between Namibia and South Africa and has a catchment area of almost a million square kilometers. The 1890 high-water-level territorial boundary ‘demarcation’ of the Orange River was determined when the territory was under German colonial rule. With Namibia’s recent independence from South Africa, both nations have engaged in an ongoing debate and conflict over exactly where, how, and under which rules or conventions the “new” hydrological boundary should be determined.

Namibia and the Orange-Senqu River

Namibia is a large arid country, located in southwestern continental Africa on the coast. Its total land area is approximately 825,418 sq km; Namibia is slightly more than half the size of Alaska but very sparsely populated. Namibia has vast sand dunes that cover an area about the size of Switzerland, is extremely arid due mostly to the scarcity of water in most areas, and geologically, the absence of deep soils over much of the country result in low levels of nutrients.¹⁴⁶ With a coastline of 1,572 km, Namibia shares land boundaries with Angola (1,376 km); Botswana (1,360 km); South Africa (855 km); and Zambia (233 km). Namibia has four primary geographic regions. The great majority of Namibia's 2 million people live in the northern part of the country where the climate is less arid and more hospitable. Forty-three percent of the population of Namibia is under the age of 15.¹⁴⁷ Thirty-nine percent live in urban areas, with the remaining rural

¹⁴⁶ Mendlesohn, Jarvis, Roberts, and Robertson. *Atlas of Namibia*.

¹⁴⁷ Namibia’s population is 87.5% black, 6% white, and 6.5% mixed. Life expectancy in 2000 dropped to 43 years, from a previous high of 61 years in 1991. People in urban areas live slightly longer than those in rural areas, and women longer than men. While per capita is approximately \$7,400 (2006 est.), the UNDP's 2005 Human Development Report indicated that 34.9% of the population live on \$1 per day and 55.8% live

population residing in northern Namibia. Although Namibia's population is spread unevenly across the country, its urban centers, like that of many African nations, are experiencing rapid and ever-increasing population growth. This has many causes including the reduction in available natural resources and an expectation on the part of rural residents of an overall improved quality of life in the country's urban center.

Along the Namibian coast lies the Namib Desert, a barren, brilliant red sand landscape that is divided into the Skeleton Coast (in the north) and the Diamond Coast (in the south). When I visited the area for my field work, I was stunned by the expanse, overwhelming beauty-contrast of the coastline and how arid. There are a number of features of this coastal desert that make it quite unlike any spot on Earth. As mentioned earlier, Namibia is one of the richest sources of diamonds in the world. Its center is occupied by a high escarpment plain. Windhoek, the capital and only city of any size, is centrally located in the middle of the country. In the northern part of the central plain is the Waterberg Plateau, a 150 sq. mi. (400 sq. km) shelf that rises 150 meters straight from the surrounding plain. The plateau is a well-watered home to several rare and endangered species. At Namibia's southern tip is yet another geological site--the Fish River Canyon, considered second only to the Grand Canyon in size. The Country's climate is desert; hot, dry with sparse and erratic rainfall and very limited natural fresh water resources. It is subject to prolonged periods of drought and further desertification.

Namibia has very little surface water, as what little rain it has either evaporates, seeps into the ground, or becomes part of the ephemeral river system—essentially dry

on \$2 per day. The World Bank considers Namibia a lower-middle-income country, where the traditional primary sectors dominate the economy (mining, agriculture, and fishing).

ivers with flows lasting any where from a few hours to a few days. The perennial river—the Kavango—along Namibia’s northern border flows from catchment (basin) areas outside its borders located primarily in Angola. In fact, several major rivers of Namibia form significant parts of Namibia’s borders, mostly in the north and northeast far from population centers and along boundaries of its neighboring countries. These rivers include the Zambezi, Kwando-Linyanti, Kunene, Orange and Okavango. Only the Kavango (Okavango River) crosses into Namibian sovereign territory. Within both the Orange-Senqu River Basin, Okavango River basin, and Southern African Development Community (SADC) region, Namibia is the driest, most water scarce of all riparians of all SADC member states and in sub-Saharan Africa.¹⁴⁸ With South African, it shares that country’s most developed and important river—the Orange-Senqu River Basin.¹⁴⁹ It also shares one of the least developed in the SADC region—the Okavango River Basin.¹⁵⁰

¹⁴⁸ This is from my interview with Dr. Jenny Day, an Associate Professor and the Head of Department of Zoology at University of Cape Town. Dr. Day is also the Director of Freshwater Research Unit (FRU). FRU is one of South Africa’s leading centers of research and teaching on the ecology and management of southern Africa’s inland waters. FRU comprises academic staff members, contract researchers, postgraduate students and technical assistants. Associates of FRU include members of other university departments and individuals working elsewhere in the field of freshwater biology.

¹⁴⁹ I learned this during my 2000 interview with Dr. Anthony Turton. At present, Turton serves on a strategic think tank in Washington and Spain, and is on the editorial board of the Springer-Verlag Water Resource Management series of textbooks. He is an executive director of the International Water Resource Association (IWRA); and is the African editor for Water Policy, the official journal of the World Water Council, being a CSIR representative to that body. At CSIR, Dr. Turton occupies the GIBB-Sera Chair and is the Research Group Leader for Water Resource Governance Systems. At the time of my initial interviews, Turton, founder of the African Waters Issues Research Unit (AWIRU), was based at the University of Pretoria, South Africa and professor at the University. AWIRU--The African Water Issues Research Unit (AWIRU) is a not-for-profit applied research organization based at the University of Pretoria, established to develop an African capacity to understand the complexity of African water management and development issues. AWIRU’s objective is to generate water management solutions that are politically, socially, economically, environmentally and culturally sustainable in Africa.

¹⁵⁰ This is from my 2000 interview with Dr. Ashton. Ashton is an aquatic ecologist specializing in the impacts and implications of water quality issues on aquatic biodiversity in African river and lake ecosystems, and the role of aquatic ecological issues in decision-making in shared river basins. He has more than thirty-six years of experience of limnological studies, water research and environmental assessment projects in southern and central Africa, with a particular emphasis on water quality assessments and integrated catchment management approaches. He has considerable experience in the deployment, co-ordination and management of multi-disciplinary project teams in various water-related fields. He is a

Access to water is the single, dominant, limiting factor in Namibia. As a result, the country's economic sustainability will become increasingly dependent upon long distance interbasin transfers,¹⁵¹ which may include the development of coastal desalination plants. These plants would still require in transferring water from coastal regions inland to population centers. The need to capture water from its only perennial river, the Kavango (Okavango) and the possible development of a hydropower station at the Popa Falls Rapids in the Caprivi Strip remains a source of hydro-political conflict for Namibia and Botswana. Nonetheless, Namibia is a member of SADC, a signatory to several transboundary water agreements and river basin organizations, and has aggressively pursued its hydrological interests. Presently, Namibia depends upon South Africa as its main source of electrical power. A hydro-power dependency the government would like to reduce. As a result, it appears that Namibia considers river basin access as a central part of its national water development and economic strategy for growth.

Namibia's Borders: A Historical Perspective

Namibia's borders are the result of a long series of events predating its independence, and are the direct result of colonial era negotiations and multiple treaties (and the delimitation and geodesic commissions). The first stage of boundary negotiations, treaties, and agreements occurred during the period when German, British,

professor of Water Resources Management at the University of Pretoria and currently works for the Council for Scientific and Industrial Research (CSIR). CSIR (<http://www.csir.co.za/index.html>) is one of the leading scientific and technology research, development and implementation organizations in Africa. It undertakes directed research and development for socio-economic growth on multiple matters of the environment, technology, etc.

¹⁵¹Byers, "Environmental Threats and Opportunities in Namibia,"14.

and Portuguese governments competed for colonial influence and territory in the 19th century. More recently, however, Namibia's boundary negotiations involve the sovereign states of South Africa and Botswana, as well as the Organization of African Union (OAU).¹⁵²

This boundary dispute represents a direct challenge to the fundamental OAU principle that has guided African boundary affairs for the past forty years—that is, independent African states would respect and therefore accept their colonial boundaries. The stakes for each riparian, Namibia and South Africa are high both hydrologically and economically. Namibia is considered a richer source of diamonds than South Africa and is considered one of the world's largest diamond producer-exporter. This is important, since where the border demarcation occurs will give Namibia control over an area rich in diamond resources, which is currently claimed by South Africa. Because of the non-water boundary-related interests, bilateral agreements aimed at reaching agreement for boundary relocation cascaded into a range of unanticipated disputes related to fishing, mining, and grazing rights in between the two nations.¹⁵³ As a result, this has led the South African government to retreat from negotiations over the precise location of the international river border between Namibia and South Africa. Thus the Orange River

¹⁵² The Organization of African Union was established in 1963 to promote self-government, respect for territorial boundaries, unity, social progress, and respect for territorial throughout the African Continent. It provided political support for the black nationalist movements in southern Africa in the frontline states (Zambia, Zimbabwe, Angola, Botswana, Mozambique, and Tanzania), which all mobilized against apartheid. More recently, after 40 years the OAU has become the African Union (AU), which has as its purpose to promote “democratic principles and institutions, popular participation and good governance.” As a continental organization, the African Union (AU) had its Constitutive Act of the AU adopted at the Lome Summit in 2000: With its first Assembly of the African heads of states convened in Durban, South Africa in 2002. In addition to its general purpose, among its many objectives is to defend the sovereignty and territorial integrity of its member states. The precise objectives and purposes of the OAU are stated in Article II of the Charter, which was adopted in 1963 in Addis Ababa, Ethiopia.

¹⁵³ Ashton, “Southern African Water Conflicts,” 79.

boundary dispute has been a long standing and consequential one in the individual and collective politics of both nations and the region, historically and currently.

An 1886 Treaty negotiated between Germany and Portugal determined Namibia's northern border between Namibia and Angola. The northern border was defined as a straight line from Andara to the rapids at Katima Mulilo, at the intersect of the Zambezi River. In addition, the 1886 Treaty formed the negotiation platform for the idea of the Caprivi Strip. The uncertainty and disagreement that followed the 1886 Treaty resulted in an 1891 designation of an 8-mile neutral zone. By 1928, the neutral zone no longer existed. The area around today's Caprivi (Strip) region came under British control and influence.¹⁵⁴

At the 1890 Berlin Conference, Britain gave the strip of land, part of what was then the Bechuanaland protectorate (now Botswana), together with the North Sea island of Heligoland, to Germany. At the time, the Germans wanted the land to connect their colony of South West Africa (now Namibia) with the Zambezi River, which they saw as a potential trade route from the interior to the coast, though later investigations showed that that route was not feasible. In exchange for Germany's access to that route, Britain would receive Zanzibar. Once again, controversy and differing interpretations about

¹⁵⁴ Caprivi is a narrow 400 km-long strip of land stretching from the Northeast of Namibia across to the Zambezi River, bounded by Angola and Zambia in the North and Botswana in the South. For several years there has been a secessionist-civil war-conflict in the Caprivi Strip being waged between the CLA (Caprivi Liberation Army) and the Government of the Republic of Namibia (GRN). Much of the past fighting centered in the Caprivi regional capital city of Katima Mulilo, with periods where the CLA would cross into Botswana and Angola. The conflict was believed to have peaked in 1999, and, against the wishes of the GRN, an agreement was made with the United Nations to provide political asylum for many of the CLA leaders of the movement to be exiled to other countries.

Not unlike the claims of others throughout the African conflict, the CLA's secessionist claims are based on the fact that the arbitrarily drawn borders of the Caprivi region cut through the Lozi-speaking area of Barotseland, a kingdom in pre-colonial times. There are Lozi speakers in neighboring Botswana, Angola and Zambia. From the perspective of the GRN, the secessionist movement has been terminated, and Caprivi political parties seeking secession have been banned. According to a UNDP Poverty Profile Report of Namibia, Caprivi is the poorest region in Namibia.

boundary locations followed the 1890 Heligoland-Zanzibar Treaty. As a result, it was not until 1930, some 40 years later, that the southern part of the northwestern border was fixed.

For Namibia, the Chobe, Kwando, Linyanti, and Zambezi River borders have been subject to various treaties, which generally determined their respective borders as the center lines of the deepest river channels (thalwegs¹⁵⁵). However, within the Chobe River, and after Namibian independence in 1990, a dispute between Namibia and Botswana regarding the subjugation and territorial status of a river island erupted, and has since been resolved. The island in question, known as Kasikili in Namibia, and in Botswana as Sedudu, is approximately 3.5 square kilometers in area, and is located in the Chobe River. In an effort to resolve that dispute and at great expense, both Namibia and Botswana agreed to take their case to the International Court of Justice (ICJ) in The Hague. On December 13, 1999, the ICJ found that:

. . . the boundary between the Republic of Botswana and the Republic of Namibia follows the line of the deepest soundings in the northern channel of the Chobe River around Kasikili/Sedudu Island" and, that ". . . Kasikili/Sedudu Island forms part of the territory of the Republic of Botswana.

In making its decision, interestingly, the ICJ used the 1890 treaty language, which in many respects resorted to the treaties and intent of colonial occupation of territorial decisions that established territorial sovereignty for European states as opposed to a non-European entity—territorial sovereignty expressions and potential decisions of

¹⁵⁵ “Thalweg” is from the German phrase “Thalweg des Hauptlaufes,” which refers to the English term referring to the “centre” of the main channel. “Thalweg” is the term used by all the southern African interviewees during the course of this research. Both are used by the ICJ in reference to the court case.

independent African states. By relying on the 1890 Treaty, the ICJ decision ‘muddied the water’ of international law, in that reliance on such treaties as part of international law furthers the colonial notion that treaties between colonial powers in the 19th century, can eclipse pre-existing title to territory based on African use and occupation. Further, by its decision, the ICJ may have unwittingly added its support to the OAU resolution that African states must live with their colonial established borders, and by inference, the related colonial treaties. Additionally, the ICJ may have further complicated the pending Orange River border dispute between Namibia and South Africa, since the court did not consider South Africa’s predecessor territorial control of the Caprivi Strip when Namibian territory was under territorial control of South Africa. While well beyond the scope of this dissertation, the Kasikili/Sedudu conflict between Namibia and Botswana, and its resolution are worth noting as it demonstrates clearly the connection between past and present transboundary resource conflicts and disputes *and* how such interests and relationships carry over into the future.¹⁵⁶

¹⁵⁶ Kasikili/Sedudu Island conflict between Namibia and Botswana concerned the sovereign ownership of a small island located in the Chobe River, which flows between the two countries. The island is known as “Sedudu” in Botswana and “Kasikili” in Namibia. In May 1996, after protracted, continuous, and sometimes localized violent conflict between Namibia and Botswana, both countries decided to present the case to the International Court of Justice (ICJ) in The Hague for resolution. Prior to that joint decision, Botswana has stationed troops on the island, as well as others in the area. Among others, this conflict demonstrates the legacy of German and British colonial territorial negotiations, which resulted in the creation of the Caprivi Zipfel (Strip) through the 1890 Anglo-German Treaty Agreement, which defined their respective areas of influence in Africa.

The ICJ was tasked with reviewing the language of 1890 Treaty, examining current and early historical maps prepared in the 1880s and 1890s, considering scientific, hydrologic, and geomorphic analysis, reports, and other relevant information, such as the Articles 31 and 32 of the Vienna Convention on the Law of Treaties, as appropriate to determine whether the northern channel or the southern channel is the ‘main channel’ of the Chobe River. It would appear that one of the central issues between the parties was always the definition and identification of the main channel itself and the consequences of such identification for the determination of the sovereignty over Kasikili Island. With its December 13 1999 judgment in favor of Botswana, the ICJ had adjudicated an intra-Commonwealth territorial dispute for the first time.

The ICJ 1999/53 press release stated that, “In its Judgment, the Court finds, by eleven votes to four, that the ‘boundary between the Republic of Botswana and the Republic of Namibia follows the line of the

Other unresolved conflicts for Namibia involve Botswana and the Situngu marshlands along the Linyanti River also in the Caprivi Strip and Namibia's planned construction of the Okavango hydroelectric dam on Popa Falls which has been met with protest by Botswana residents. Then, there is the historical, continued, and current dispute between Namibia and South Africa over the boundary location in the Orange River.

A fourth, but resolved, conflict for Namibia and South Africa involved Namibia's support for construction of a bridge over the Zambezi River, “. . . which by its construction would establish a short, but not clearly delimited Botswana-Zambia boundary in the river.”¹⁵⁷ Construction discussions about the bridge began in the late 1980s, 10 years before Namibia's independence, were dismissed by the South African government. Opened officially in 2004, the bridge represents a symbolic nuance for Namibia in light of its history and recent independence.¹⁵⁸ The bridge establishes a trade route for Namibia to its land-locked neighbouring states (Botswana, Zambia and Zimbabwe) and lessens its economic dependence upon South Africa for trade and markets. In 2004, Zimbabwe dropped objections to the plans.

The ‘shadows of the past’ cannot be separated either from territorial integrity and statehood or from interpreting the consequences of “effective” cooperation between states

deepest soundings in the northern channel of the Chobe River around Kasikili/Sedudu Island’ and, by eleven votes to four again, that ‘Kasikili/Sedudu Island forms part of the territory of the Republic of Botswana’.”

¹⁵⁷ U.S. Department of State, *The CIA World Factbook*.

¹⁵⁸ Ironically, according to Dr. Klaus Dierks’ “The History of the Zambezi Bridge from Namibia to Zambia: 1982 – 2004,” the most suitable bridge site was just a few metres within Zambia and on the basalt rocks of the Katima Rapids, just five metres from the old border beacon of 1927 between the then South West Africa and Northern Rhodesia (present-day Zambia), still visible today just at the western abutment of the bridge. Such a bridge between Namibia and “Black Africa” was regarded as high treason in those years.

on transboundary water issues. In each of the above instances, Namibia's past, its former identity as SWA and its old borders are intertwined with the discussion on the Orange and Okavango River Basins, along with those of the river's riparians. As this case study evolves, this research will further illustrate how inextricably the past and present are linked and how those linkages complicate hydro-politics for Namibia, as well as other African states within the Orange and Okavango River basins, and influence prospects for transboundary cooperation.

During the boundary dispute between Namibia and South Africa, the 'shadows of the past', along with Namibia's continuous efforts to demonstrate its sovereign independence in the presence of South Africa's regional and riparian hegemony, further effects significant influence on the degree, importance, and consequence of cooperation and conflict among riparians. Cooperation regimes, whose building blocks would include trust building, information data sharing, and other joint actions necessary to support transboundary watercourse efforts, are less likely to realize their desired outcomes or influence behavioral change by riparians if questions of basic sovereignty remain in dispute. Are such disputes subject to violent conflict? Not necessarily, although some states have been known to engage in violent conflict over territorial boundaries. Consider, for example, the current boundary conflict between Ethiopia and Eritrea¹⁵⁹, where factions from both countries have been engaged in armed conflict which

¹⁵⁹ A BBC article, "Border: A Geographer's Nightmare," describes some of the issues surrounding national boundaries here. Much of the border is defined by rivers; however, around the area of Badme the treaty stipulates an imaginary line linking two rivers. In the case of Ethiopia and Eritrea, however, the border issue became confused when Eritrea was ruled as a province of Ethiopia. The old colonial boundary disappeared for several decades within the territory of a single state. In the late 1980s a de facto line of control was established between the two groups to the west of the colonial boundary, which granted the Tigreans (People's Liberation front) control of an area which had been part of Eritrea in colonial days.

has its origins in the colonial past and current geopolitical objectives. However not all asymmetric, self-interested strategic disputes result in violent conflict. Nonetheless, Zeitoun reminds us that, “. . . tensions relating to the uglier faces of cooperation do not disappear with time.”¹⁶⁰

Contemporary theories typically explain cooperative and reciprocal relationships by framing them as structures through which prosperity is gained and community built.¹⁶¹

¹⁶²However, cooperation can be asymmetric and can become, either through a strong actor or by itself, a coercive force. The first approach fails to recognize the place of coercion in the construction of social order. Mark Zeitoun, a Canadian scholar at the London School of Economics, argues that rivers provide a perfect case of “asymmetrical co-operation” between countries that are forced to work together on terms dictated by the strongest (the hydro-hegemon, or regional hegemon). An alternative approach argues that when there is a future involving an infinite number of interactions between actors, the levels of cooperation are higher¹⁶³ in part because the actors gain experience. They learn to cooperate. Axelrod argues further that cooperation does in fact work for those involved in reciprocal relationships, if the ‘shadow of the future’ is long enough.

Axelrod’s cooperation analysis was based on “Prisoner’s Dilemma” (game theory)¹⁶⁴ and

Eritrea’s political position is to return to the colonial boundary that was in force before Eritrea was incorporated into Ethiopia.

¹⁶⁰ Zeitoun, “Not All Water Cooperation is Pretty.”

¹⁶¹ Fukuyama’s *Trust: The Social Virtues and the Creation of Prosperity* and Putnam, Leonardi, and Nanetti’s *Making Democracy Work: Civic Traditions in Modern Italy* both provide further information on the theoretical work surrounding community development.

¹⁶² Portes and Landolt, “The Downside of Social Capital,” 20.

¹⁶³ Both Bo’s “Cooperation under the Shadow of the Future” and Axelrod’s *The Evolution of Cooperation* elaborate on this theme.

¹⁶⁴ The “Prisoner’s Dilemma,” the basis of Axelrod’s cooperation analysis and discussed in *The Evolution of Cooperation*, represents a situation where two allied suspects are separated and their ability to cooperate is tested by their captors. Both are given the same opportunity with four possible outcomes and rewards:

does not consider the presence of a central authority, such as a hydro-hegemon, able to force actors or individuals to cooperate with one another.

***The Orange River Conflict--Namibia, South Africa and Orange-Senqu River Basin
Hydro-politics--the River has Two Sides***

“Water is the true wealth in a dry land; without it, land is worthless or nearly so. And if you control water, you control the land that depends on it.” Wallace Stegner, 1954.

When Namibia won its independence from South Africa in 1990, one of the expectations was that South Africa would end its claim of sovereignty over the entire Orange River (and Walvis Bay). Additionally, it was anticipated that Pretoria would release the mineral rights ceded to mining companies, and to land rights to communities on the other side of the Namibian border. According to numerous reports,¹⁶⁵ in 1994, the former South African President, Nelson Mandela, and his cabinet agreed that the South African and Namibian Orange River borders should be relocated to the middle of the river, as indicated by international law. However, South Africa has been reluctant and slow to give up these rights. Thus, a long-running dispute has delayed the finalization of the boundary between the two countries. The Lower Orange River, the area where South Africa and Namibia share the border, is controlled by South Africa and it is South Africa that also controls the mineral resources on the land that depends upon the water.

Albert Kawana, Namibia’s deputy justice minister, said the two governments agreed to a formal treaty stating the border was in the middle of the river in February

(1) Both remain silent; (2) Both squeal (3) One testifies against the other; or (4) one testifies first against the other. The rewards or punishments are meted accordingly.

¹⁶⁵ This topic has been the focus of discussion in many articles by Christof Maletsky, some of which have been published in *The Namibian* and in *Business Day*.

1993. According to Mr. Kawana, the two countries' survey departments were to produce photomaps and place beacons linked to satellites in an effort to approximately identify the middle of the river. As a result, more than seventy maps were generated. About that same time, however, South Africa introduced a private property rights agreement relating to the border's shift from the northern bank along the Namibian shoreline to the middle of the river. There are high stakes in this hydro-boundary dispute: mineral, land, and fishing rights, and grazing rights on river islands. Also of concern in this hydro-boundary dispute is the lack of clarity demarcating the maritime boundary that separates South Africa and Namibian territorial waters. These waters empty into the Alexander Bay and extend 200 miles outward into the Atlantic Ocean.

In Namibia, the Orange River is a shared perennial river border with South Africa. As there are no dams on the common lower Orange River border running between Namibia and South Africa to the Atlantic Ocean, Namibia is dependent upon South Africa for river regulation and the release of water from upstream dams¹⁶⁶. The 'shadow of the past' looms large in the contemporary and current relationship between Namibia and South Africa. A source of conflict, frustration, and several bilateral and multilateral agreements, the dynamic between Namibia and South Africa over their shared segment of the Orange River has a history that begins in the colonial era with an agreement between Britain and Germany in the early 19th Century.

In 1890, Namibia became a German colony, and the Caprivi territory becomes part of Namibia. By 1906 the British Colonial Office attempted to make the German Government accept and comply with the 1890 Boundary Treaty which determined “. . .

¹⁶⁶ Heyns, Interview.

the fixed (boundary) line marked by the northern margin of the stream after the rains". In the interim, the Union of South Africa was established, marking the end the British government's negotiations about the boundary of the Orange River in the aftermath of the Boer War.

Under several regimes and despite vast ideological changes, the government of South Africa has always asserted that the northern side of the river (now the Namibian side of the Orange River) was part of their territory and under their jurisdiction. Indeed, all early conditions regarding establishing political control over or boundaries for the Orange River had the effect of creating a *de facto* subservience towards Great Britain (later the Union of South Africa). Negotiations over the Orange River boundary dispute continued until World War I (WWI). However, all the early attempts to establish political control over the boundaries of the Orange River ultimately valorized colonial legislation extending back to British dominance.

The outbreak of WWI suspended any final resolution of the Orange River boundary, political questions, and diplomatic dialogue. With the signing of the Treaty of Versailles and a decision by the League of Nations, the former German colonial territory of South West Africa (Namibia) became a "trust" to South Africa.¹⁶⁷ The German Protectorate of South West Africa ceased to exist. That territory became part of South Africa. What is important is that under this new agreement, both sides of the River would come under the control of one political administrative power—South Africa—vis-à-vis the responsibility of the South African Department of Water Affairs (DWA). However, according to Hangula, DWA had no authority, legally or politically, to make

¹⁶⁷ Hangula, *The International Boundary of Namibia*.

decisions on matters such as river boundaries.¹⁶⁸ Nonetheless, the Orange River boundary question was temporarily resolved.

An agreement establishing the boundary between Namibia and Angola was signed on 22 June 1922, at the Boundary Convention in Cape Town (South Africa) by the Governments of the Union of SA and Republic of Portugal. The boundary was declared the middle line of the Kunene River, a “line drawn equidistant from both banks, from the mouth of the said River up to a point at the Rua Caná Falls above the crest or lip where the said middle line crosses the parallel of latitude passing through the beacon placed on the left bank of the said river in July, 1920, by a joint Commission appointed by the British and Portuguese Governments”. Article 3 of that agreement references the continuation of that line described in Article 2, as following “. . . the parallel of latitude passing through the said beacon to a point where it cuts the middle line of the Okavango (Cubango) River (as described in Article 1 of the Treaty of Lisbon of 30th December, 1886)”. The Commission continues by suggesting that “[i]n demarcating the boundary line from the Kunene to the Okavango (Cubango) River, the latitude of boundary marks shall be corrected by means of astronomical observations at distances of not more than fifty kilometers apart. Except where a river forms the boundary, permanent beacons shall be erected.”

Article 4 further requires that both governments, meaning the Union of South Africa and the Republic of Portugal, will have joint responsibility for bush and tree clearing and maintenance of the beacons. Article 6 provides for islands that may be situated in the river, “. . . where the middle line of the river, that is to say the line lying

¹⁶⁸ Hangula, *The International Boundary of Namibia*.

equidistant from both banks, cuts an island situated in the river, such middle line shall constitute the boundary between the Territory (SA) and Angola.

Article 7 assures compensation for either of the parties if one or the other determines that deviating from the agreed upon boundary line becomes a practical matter. At the time of this agreement, there was a lack of detailed geographic and hydrologic information and the water question was not conclusively discussed.¹⁶⁹ According to Hangula, there were some places where the demarcation works were met with hostility from the local native population and missionaries. They argued that the demarcation would result in separation of families and deprive many people of their parishes, fields, and grazing areas. In response, the League of Nations called on Portugal to respect the “customary rights” of the people of Owamboland.¹⁷⁰

The 20th meridian of east longitude separates Namibia and South Africa, and is the Orange River’s the most contested feature. The Orange River, also known as the Garib, flows eastward to its mouth on the Atlantic Ocean Coast. It is the only river that flows eastward in Southern Africa. In the 1850’s, British colonists in the Cape Colony considered the Orange River to be the northern boundary of the Colony. However, the boundary was not legalized until 1854 at the Convention of Bloemfontein. It was not until July 1890 that the Anglo-German global treaty ratified the Orange River boundary internationally, using the following terms:

In South West Africa, the sphere in which the exercise of the influence is reserved to Germany is bounded: 1. To the South by a line commencing at the mouth of the

¹⁶⁹ Ibid.

¹⁷⁰ From *The International Boundary of Namibia* by Hangula. Hangula is drawing on Carlos Roma Machado’s *Na fronteira Sul de Angola*, published in 1941 in Lisboa. Owamboland remained *de facto* independent until 1915 and was symbolized through the non-demarcation of the international boundary between Angola and the current Namibia.

Orange River, and ascending the north bank intersection by (the) 20th degree of east longitude. (Art. III)¹⁷¹

Arguably, the dispute (the Rahmansdrift Ferry¹⁷² question) of where exactly to draw the national colonial territorial boundary -- that is, “along its left bank to where it empties itself into the South Atlantic Ocean” or in the middle of the river – has its origins in 1899. The fixing of the boundary as either the middle of the river or on its northern bank is believed to have been a “protracted dispute between Great Britain and Germany centered firstly on the question of access to water for German subjects in Namaland. It ended with the request that the medium filum fluminis aquae, i.e. the middle of the river, be adopted as the international boundary on the Orange River.”¹⁷³

Known once as the Rahmansdrift Ferry question, Hangula asserts the dispute as to where to draw the Orange River boundary is one of the “longest boundary disputes in the history of colonial diplomacy”.¹⁷⁴ On the Namibian side, the Rahmansdrift question not only survived the German colonial period, the South African Mandate, and its colonial

¹⁷¹ From Hertslet’s *The Map of Africa by Treaty*, in Hangula’s *The International Boundary of Namibia*.

¹⁷² According to the Cape Ministers to Governor of the Cape Colony, as cited in research by Hangula, the Rahmansdrift Ferry Question began in May 1899 when a German “sheep inspector in Namaqualand, A. Niederheitmann, applied to the British Colonial Government in the Cape Colony for a ferry and trading license at Rahman’s Drift on the Orange River.” When a German subject requested permission from an alien (British) Government to build a ferry pontoon on the South West African side of the Garib (Orange) River, the boundary question was initiated. Which colonial government-power has jurisdictional control and the authority to make determinations about what types of activities go on in whose territory? The Cape Colony government responded by informing the German Governor, that: “in terms of the delimitation of the boundary of the Protectorate, the whole bed of the river belongs to the (Cape) Colony, the German boundary being the north bank”. Over time, what seems to have begun with a simple request was followed by a misunderstanding, which then developed into a diplomatic dispute between two colonial powers—Germany and Great Britain. Further, the dispute came at a difficult time for both. The Germans were pre-occupied with anti-colonial unrest and rebellion (German-Nama War) and the British with the Anglo-Boer War. Each was suspicious of the other, and concerned that the other would support the insurgents in a guerilla war.

¹⁷³ Hangula, *International Boundary*, 105.

¹⁷⁴ Hangula, *International Boundary*.

after effects, but has also continued to be an essential fundamental diplomatic and political concern since Namibia became independent in 1990.

In defining its northern border with Angola, and disputing its OR southern border, the independent Namibian state has had no direct role. South Africa has been, and continues to be, one of the dominant political actors in the bilateral relations between Namibia, and within the Orange River Basin. Upon its independence in March 1990, Namibia expected Pretoria (South Africa) would drop its claim of sovereignty over the entire Orange River. In addition, Namibia expected that SA would release the mineral rights ceded to mining companies and land rights to communities on the other side of the Namibian border. There was also the question of Walvis Bay.

Located north of the Orange River, Walvis Bay is the most coveted harbor along the Namibian coast. Due to its protected natural deep water harbor and notable salt pans, Walvis Bay has always been considered prized property. The first to take possession of it were the Dutch authorities in the Cape in 1793. When Britain annexed the enclave in 1884, and formally declared it part of the Cape Colony, Walvis Bay entered British hands. Ironically, when Namibia obtained its independence in 1990, Walvis Bay, previously incorporated in the Cape Colony, remained under the government and territorial rule of South Africa. As late as 1994, South Africa continued to define and claim Walvis Bay as its own territory: part of neither independent Namibia nor South West Africa. It was not until the February of 1994, and then only after continuous negotiations during the early 1990's, that South Africa relinquished its control over Walvis Bay, at which time it was reintegrated fully into Namibia as part of its sovereign territory.

In 1994, SA President Nelson Mandela and his cabinet decided to move the border to the middle of the river—the thalweg¹⁷⁵. According to an article in *The Namibian* by C. Maletsky, a statement issued by Foreign Affairs, Information and Broadcasting Minister Theo Ben Gurirab said he was not aware of any such communication from Pretoria. Gurirab's office later described the sudden change of SA's stance as a “memory lapse.” “It is understandable, in any government business, that from time-to-time memory gaps occur that not infrequently encumber record-keeping,” the statement said. The government of South Africa, however, could not come to terms in full support of President Mandela’s decision during his term in office.

To date South Africa still has not agreed to relinquish its position regarding the current boundary demarcation, which gives it the territorial advantage. The long-running dispute has delayed any alternative final demarcation of the boundary between the two countries. According to a report in *The Namibian* by Christof Maletsky in November of 2000, South Africa argued that Namibia should respect the OAU (Organization of African Unity) policy of respecting colonial borders regarding the Orange River. Under such circumstances, the Orange River border remains on the northern high-water mark, not in the middle of the river. Maletsky also reported that Dumisani Raheleng, South Africa’s Foreign Affairs spokesman, understood that President Mbeki had “personally informed President Sam Nujoma that the Orange River border was on the northern high-water mark, not in the middle”¹⁷⁶ as indicated earlier under President Nelson Mandela’s Administration. Rasheleng reportedly said this stance was taken by the SA Cabinet

¹⁷⁵ Dr. Ashton defines the thalweg as the center and the deepest part of the river channel.

¹⁷⁶ Maletsky, “South Africa tells Namibia to respect colonial border.”

during one of its meetings in July of 2000, and that this position had been communicated to Namibia.

Albert Kawana, Namibia's deputy justice minister, said the two governments agreed to a formal treaty stating the border was in the middle of the river in February 1993. He said it was decided that the two countries' survey departments should produce photomaps and beacons (markers) linked to satellite to identify the middle of the river.¹⁷⁷ Seventy-seven maps were issued, and beacons completed. Not satisfied and still attempting to secure its territorial dominance, SA introduced a private property rights agreement relating to the border's shift from the northern bank to the middle of the river. This covers mineral rights and land rights on the islands of the river.¹⁷⁸

When SA brought up the private property rights agreement, Namibia balked and then requested further information. The prolonged talks have resulted in clashes over mineral rights in the river and grazing rights on its islands, and brouhaha for fishing vessels. Both governments say that without a clear-cut boundary they cannot prosecute fishing vessels for "trespassing" in the river. The dispute revolves around multiple conflicting claims, including that as stated in Article 1:4 of the Namibian Constitution, 1990¹⁷⁹:

The national territory of Namibia shall consist of the whole of the territory recognized by the international community through the organs of the United Nations as Namibia, including the enclave, harbour and port of Walvis Bay, as well as the off-shore islands of Namibia, and its southern boundary shall extend to the middle of the Orange River.

¹⁷⁷ Ibid.

¹⁷⁸ Ibid

¹⁷⁹ The text of the constitution is available at <http://www.orusovo.com/namcon>.

In response, however, South Africa continues to adhere to the July 1890 Berlin agreement between Great Britain and Germany, which establishes the OR border on the northern bank of the river.¹⁸⁰ South Africa's position is that the border is contained in an agreement signed in 1890 between Germany and Britain.¹⁸¹ Additionally, South Africa endorses the OAU principle of retaining and accepting colonial established borders. The OAU Resolution 16 (1) of July 1964 states that: "... border problems constitute a grave and permanent factor of dissention . . . considering further that the borders of African States, on the day of their independence, constitute a tangible reality . . . solemnly declares that all Member States pledge themselves to respect the borders existing on their achievement of national independence."

In 2001, the ANC government of South Africa, under President Thabo Mbeki, repeatedly argued this principal as a rationale for leaving the Orange River boundary where it was established under colonial rule before Namibian independence and that it would not be changed. This would leave the border on the Namibian shoreline. By frequently citing the OAU Resolution 16 (1), the South African Government refuses to compromise on its national territory and concede to either Namibia's claims¹⁸² or international conventions, laws, or agreements that assert the 'thalweg' or 'middle of the river' as the appropriate boundary demarcation for contiguous rivers between riparian states.

To reiterate, the demarcation of the Orange River border between Namibia and SA remains a significantly political, economic, and security matter. If no decision is

¹⁸⁰ Meissner, "Water Disputes-Drawing the Line."

¹⁸¹ The agreement states: "In south-west Africa the sphere in which the exercise of influence is reserved to Germany is bounded – To the south by a line commencing at the mouth of the Orange River and ascending to the north bank of that river to the point of its intersection by twentieth degree of east longitude".

¹⁸² Meissner, "Water Disputes-Drawing the Line."

made, the 200 nautical mile sea boundary can neither be defined, nor adequately secured. Even though water access is an important consideration for Namibia, overall the Orange River issues are more than questions about access to water, as shown by Namibia and SA continuing to have good diplomatic relations surrounding the use of the Okavango Basin.

Even though there are contentious issues surrounding the Orange River, Namibia and South Africa continue to engage in bilateral and in multilateral agreements in the Okavango Basin. Although there are no indicators at the time of this research, there is no reason not to consider that a continuous protracted dispute between Namibia and South Africa in one basin may not spill over into dispute and conflict in another, specifically the Okavango basin. Such a possibility may emerge if Namibia begins to feel itself unable to exercise its sovereign power or is subjected to another severe drought where the matter of water once again dominates.

This situation is fraught with underlying conflict and tension, especially if Botswana decides to flex its strategic OSRB political position for a quid pro quo on the part of either Namibia or South Africa as a riparian in Okavango River basin hydro-politics. As a land-locked country, Botswana requires the cooperation of at least a second country for its long-term economic growth, but is able to defend its interests through what state it chooses to support.

Botswana is in a political position to form alliances with one or more basin states in order to manipulate the situation to its own advantage. Botswanan support of Namibia's position could leverage concessions by Namibia not to ever proceed with ENWC pipeline to drain water from the Okavango River that passes through Namibia. This river also supplies the Okavango Delta in Botswana. Alternatively, Botswana could

support South Africa's (and the OAU) OSRB boundary position to leverage access to water resources from the LHWP, leaving Namibia alone in political battle against regional hydro-hegemonic interests.

For both Namibia and South Africa, the mouth of Orange River offers lucrative mineral prospects: diamond mining, off-shore drilling, fishing grounds, control of water resources, farm land, river islands, and the ability to monitor or prosecute fishing vessels for trespassing on the river. Both states are trying to protect their national interests, with one trying to protect its territorial integrity and benefits, and the other attempting to gain and secure territorial integrity and territorial sovereignty.

South Africa maintains that it has never denied Namibia access to the river. This assertion was repeated multiple times during my interview with Mr. Leo Van Den Berg, Senior Specialist Engineer, International Liaison in the South Africa Department of Water Affairs and Forestry (DWAF), in October of 2000. Still, if the disputes and conflict were only about water, potentially the position of South Africa on the matter of access could be sustained with bilateral agreements. After all, it is unclear as to whether the government of Namibia has ever formally sought access on the basis of water need. In the OSRB Namibia is the downstream riparian. Downstream states are not exclusively helpless, as demonstrated by the cases of Egypt in the Nile River Basin. An upstream state, like South Africa, may rely on water to enhance its power; however such a position is not always possible, especially if the downstream state functions as the regional hegemonic power. Although Namibia is not the hydro-hegemon it has the ability to manipulate a political position and potential alignment with Botswana to its advantage.

These theoretical agreements do not address the questions of Namibia's sovereign claims and expectations of securing what it believes are its territorial rights. If, however, South Africa adopts or accepts the principles established in the Namibian Constitution, it could set a precedent for other land claims from other neighboring states, Lesotho for example.¹⁸³ Under the best scenario, one possible outcome is that South Africa and Namibia will agree to renegotiate the boundary, consistent with international norms. They would then be able to strike a deal over who will retain control over everything else, including mineral, gas, and diamond resources.

Since water is not the principal focus, the question is now this: how do non-water disputes affect efforts to cooperate on water? In the case of Namibia and South Africa, one might conclude that the non-water disputes have not had an obvious or direct impact on the ability of both nations to 'cooperate' on water issues in either the Orange or Okavango River Basins or establish transboundary water cooperation regimes. In some respects, I would attribute the ability to transcend the conflict and engage on a cooperative level to their shared past, where the water elites, scholars, researchers and government bureaucrats in both countries have known one another, worked together on these and other water-related issues prior to Namibia's independence. In short, they know one another and operate at a less contentious political level. During the apartheid period and when Namibia was considered South West Africa (1915 – 1989), South African bureaucrats controlled all water management decision-making in what would become the Republic of Namibia.

¹⁸³ Turton, Meissner, Mampane, and Seremo, "A Hydropolitical History of South Africa's International River Basins."

Ironically, in this case, both countries have agreed to agree only on water issues. In support of that stance are several basin and regional institutional frameworks that reflect each state's decision to address their respective transboundary water concerns. In 2006, South Africa and Namibia “. . . instructed the Permanent Water Commission to draft an agreement on the use of water from the Orange River along the common border,” expressed the opinion that “users be encouraged to conserve water, and that a new dam be considered at Noordoewer-Vioolsdrif to regulate the flow of water.”¹⁸⁴ From Namibia's perspective, however, the boundary question remains open and unresolved.

For Namibia, at higher political levels, the Orange River boundary question and water issues must be addressed within the basic politics of statehood and sovereignty. Past evidence to support such a position can be found in Namibia's initial claims of sovereign control of Kasikili (Sedudu) island over that of Botswana and a willingness to pursue the matter to the ICJ. Also, its efforts to build the Epupa dam on the Cunene River, a border river it shares with Angola, and support for construction of a bridge over the Zambezi River, opposed by South Africa, suggest that Namibia views the boundary issue as one of sovereignty, not one of water. Further, the Namibian Constitution is explicitly clear in its assertion of the Namibian position, as it acknowledges that the southern boundary of Namibia is the middle of the Orange River.

¹⁸⁴ This is from one of Christof Maletsky's 2006 articles in *The Namibian*. Christof Maletsky is the Assistant News Editor of *The Namibian*, Windhoek, Namibia, which covers local politics. He has written many articles on the boundary debate between South Africa and Namibia.

Lesotho and the Orange-Senqu River Basin

Lesotho's relationship with the Orange-Senqu River is as much about its relationship with South Africa as it is about the Senqu itself. Lesotho, with a population of approximately two million, is a small mountainous country surrounded by South Africa. It provides its much larger neighbor with water to fuel its industrial growth; Lesotho's national economy is buoyed by the US \$1.3 billion annual gross domestic product from the Lesotho Highlands Water (LHW) Scheme. This six-dam project scheduled for completion in 2015 currently provides hydro-electricity to Lesotho and water and hydro-electricity to South Africa. The LHW Project has become a divisive issue in Lesotho, considering that 50 percent of the population lives below the poverty line. The \$3 million USD a month royalties from the LHW project are not distributed amongst the general population.

In 1966, the British Lesotho protectorate gained its independence. However, the political conditions between South Africa and Lesotho were influenced significantly by South Africa's apartheid policy and Lesotho's willingness to provide sanctuary to African National Congress (ANC) members when the party was banned in South Africa. As a result, there were no written agreements between South Africa and Lesotho regarding a possible hydraulics project. Periodic talks continued, but were undocumented.

In 1978 the Joint Technical Committee between Lesotho and South Africa was created to do a full feasibility study to identify options for providing South Africa with a source for bulk quantities of water for extraction or transfer to counter droughts, like those experienced in the 1960s, and to assure water security in Gauteng Province

specifically. A bilateral multi-billion project financed primarily by the World Bank, the LHWP's main purpose is to supply clean water to Gauteng Province in South Africa, and in return generate electricity to meet Lesotho's needs. In addition to providing a major source of electrical power and water supply, the first phase of the LHWP transfers water from the upper reaches of the Orange-Senqu River to the Vaal River.

South Africa is dependent on surface water resources for most of the urban, industrial, and irrigation water supplies in the country. Groundwater, while also extensively utilized, particularly in the rural and more arid areas, is limited due to the geology of the country. Large porous aquifers occur only in a few areas. As in other SADC states, South Africa uses water from the Orange River for irrigation, accounting for approximately 90% of its use.

In 1986, with a military coup d'état in Lesotho, the government¹⁸⁵ fell under the command of General Major Lekhanya. That same year, the treaty establishing the Lesotho Highlands Water Commission (LHWC) was signed between South Africa and the Kingdom of Lesotho for work on the project to begin.¹⁸⁶ With water transfer and infrastructure cooperation in mind, the 1986 treaty created two authorities: the Trans

¹⁸⁵ Since its independence from Britain in 1966, Lesotho has had a volatile unstable, political history. The nation has only held four elections since 1966. The first post-independence election in 1970 was annulled by Prime Minister Leabua Jonathan, which resulted in 16 years of a state of emergency. The 'state of emergency' ended in a military coup, followed by rule of decree with an executive monarch. A brief return to democracy in the early 1990s was followed by another military coup in 1994. Democratic elections in 1998 lead to an army mutiny, which in turn resulted in the SADF (South African Defense Force) intervening to put an end to the unrest. Several have suggested that South Africa's military protection of the LHWP infrastructure and assets was tantamount to a 'water war' of sorts; however, that was not the case. In my interview with Dr. Anthony Turton, a well-known South African political scientist-scholar on regional hydro-politics, he offered hard evidence and first-hand knowledge suggesting that South Africa's military intervention was requested.

¹⁸⁶ Although it is not known for certain, it has been suggested that the coup may have been a deliberate attempt on behalf of South Africa to get rid of the Jonathan government in Lesotho in order to get the project going. This is based on extensive interviews with Bryan Davies, Richard Meissner, Tony Turton, and Peter Ashton, which were conducted in Cape Town and Pretoria in South Africa during 2002, 2004, and 2005.

Caledon Tunnel Authority (TCTA)¹⁸⁷ and the Lesotho Highlands Development Authority (LHDA).

The Treaty is unique in that it allows for the disparity in economic development between Lesotho and South Africa and addresses the specific concerns of each partner. The Treaty stipulates that “all reasonable measures” should be taken, “to ensure...the protection of the existing quality of the environment and, in particular...the welfare of the persons and communities immediately affected by the Project”. The LHWP¹⁸⁸ treaty has had a significant impact on the hydro-political relations between South Africa and Lesotho, resulting in no less than six Protocols added to the treaty in order to resolve disputes between the two nations. To assure the interests of both Lesotho and South Africa were adequately represented, the signatories also established the Joint Permanent Technical Commission (JPTC) to monitor, advise, and approve activities towards implementation of the project. The JPTC was later renamed the Lesotho Highlands Water Commission (LHWC) and its role was also redefined in accordance with Protocol VI of the Treaty. The Commission meets regularly (about once every two weeks). For

¹⁸⁷ TCTA advertises its basic “product” as bulk water (transfer) infrastructure. According to the terms of Government Notice 2631 of December 12, 1986, TCTA was established for “the implementation, operation and maintenance of the project works within South Africa” according to the LHWP Treaty. Directed by the South African government, TCTA has the responsibility for liability management of the LHWP. With the delivery of water beginning in 1998, the implementation function on Phase 1A was fulfilled. However, TCTA continues to perform the operations and maintenance function on the LHWP structures within South Africa as prescribed in Protocol VI.

¹⁸⁸ In March 2004, South African President Thabo Mbeki and King Letsie III of Lesotho inaugurated Phase 1B of the multi-phased Lesotho Highlands Water Project (LHWP), the world's largest water transfer operation, almost six years after construction began in 1998. The four-phased water transfer project involves diverting about half the water flowing down the Senqu River (known as the Orange River in South Africa) into the Vaal River system to meet the water demands of South Africa's Gauteng Province. According to the Lesotho government, by the end of the fourth phase of the proposed scheme in 2015, six dams will have been constructed, including a 200 km network of transfer tunnels through the Maluti Mountains, delivering 82 cubic metres of water per second. In return, Lesotho receives R200 Million (almost US \$30 million) from South Africa in annual royalties. The mountain kingdom's recurrent budget is about R261 Million (about US \$39 Million). As referred to as "white gold" by Thabo Mbeki, water in Lesotho is the country's largest single source of foreign exchange. A March 16, 2004 report on IRIN News, “LESOTHO: Phase 1 of Highlands Water Project now fully operational,” goes into this in more detail.

both countries there are permanent delegates representing each country, and a large technical/profession staff that comprise the Lesotho Highlands Development Authority. The LHWC¹⁸⁹ is responsible for monitoring the activities of both the TCTA and LHDA, and to uphold the treaty and subsequent protocol provisions, which relate to the specifics of water transfer. Additionally, the LHWC also monitors TCTA and LHDA influences on the hydropower element of the project.

In 1995, South African water use was about 2,000 million m³ per year for irrigation and 125 million m³ per year for urban and industrial purposes. Even after complete implementation of Phase 1 of the LHWP¹⁹⁰, irrigation will continue to dominate as the foremost water use in South Africa, as well as in the SADC region. Indeed, it is possible that the Lesotho Highlands Water Project has had the most significant impact on the dynamics of water politics within the Orange-Senqu River Basin.

The Mohale and Katse dams, the first phase of the LHWP, were built on the Senqunyane river in the Thabaputsoa Mountain range in southern Lesotho at a cost of US\$4 billion, to supply water to neighboring South Africa's rapidly expanding industrial hub in Gauteng Province. According to Ronnie Mamoepa, South African foreign affairs spokesperson, "The LHWP Phase 1 solves Gauteng's water problem for the immediate future, rejuvenates the Vaal River, and provides Lesotho with valuable income, job opportunities, electricity and infrastructure, on which tourism and industrial development can thrive."¹⁹¹ Provided funds are available and South Africa decides to go forward with

¹⁸⁹ The LHWC (Lesotho Highlands Water Commission) is the bilateral commission previously known as the Joint Permanent Technical Commission (JPTC), and was established by the Lesotho Highlands Water Project Treaty.

¹⁹⁰ In March 2004, Phase I of the Lesotho Water Highland Project was determined fully operational.

¹⁹¹ IRIN News, "LESOTHO: Phase 1 of Highlands Water Project now fully operational".

the remaining phases of the project, it is expected that all four phases of the LHWP will be completed by 2015.

For twenty years, the LHWP, the accompanying Treaty, its commissions, and its technical commissions represented consistent bilateral cooperation over water resources. Its protocols are a large part of this carefully negotiated cooperation. Generally, the protocols ensure a more equitable distribution of costs and benefits between Lesotho and South Africa as they relate to the LHWP. For example, the signing of Protocol V ended a long-standing dispute over taxation matters concerning LHWP activities in Lesotho by minimizing any costs that may result from the levying of taxes, on project activities and provides a cap on project-related taxes.

Overall, long-term hydro-political and economic relations between Lesotho and South Africa on the LHWP¹⁹² are indicators of a high level of collaboration and cooperation on the Orange-Senqu River Basin, according to several individuals with whom I spoke, connected to the LHWP, SA-DWAF, and the SADC water sector coordinator. Such a position is, however, drawing from the shadows of the past, asymmetry, and hydro-hegemony, as the LHWP was negotiated during SA's apartheid era, and when the country was under sanctions.

¹⁹² According to Dor's article, "The Privatization of Utilities is an Invitation to Bribery and Graft," published in the July 29, 1999 edition of *Business Day* (South Africa), the following companies and amount of bribes were involved: ABB (Swedish/Swiss) – Ff 250000 (US\$40,410); Acres International (Canadian) – C\$279539 (US\$185,002); Impregilo (Italy) – US\$250,000; Spie Batignolles (French) – Ff 738630 (US\$119,393); Sogreah (French) – Ff 84000 (US\$13,578); Dumez International (French) – Ff 509905,62 (US\$82,422). Lahmeyer Consulting Engineers (German) – DM 16000 (US\$8674); ED Züblin (German) – DM 819862 (US\$444,466); Diwi Consulting (Germany) – DM 4500 (US\$2439); LHPC Chantiers (international consortium) – R392967 (US\$63,959); Highlands Water Venture (international consortium, including Impregilo, the German firm Hochtief, the French firm Bouygues, the UK firms Keir International and Stirling International, and South African firms Concor and Group Five) – \$733,404; Lesotho Highlands Project Contractors (international consortium which includes Balfour Beatty, Spie Batignolles, LTA, Züblin) – DM 105639 (US\$57,269). According to Patrick McCully, author of *Silenced Rivers* (Zed Books, 1996), the companies cited above are the 'who's who' of dam construction companies.

Neither South Africa nor Lesotho, as the British Protectorate territory of Basutoland, considered water or water-transfer an international or transboundary water resources an issue in the 1950s. Once independent, however, Lesotho was anxious to exploit its abundant water supply. That, combined with South Africa's growing demand, helped both states realize they had the same goal—utilizing the headwaters of the Orange River for their own economic wellbeing. Therefore, even when cooperative relationships are defined as exploitative structures that obscure “the exercise of power,”¹⁹³ cooperation may work for those involved in reciprocal relationships.¹⁹⁴ Also, this particular reciprocal relationship is built on sustainable resource management. The 1999 Orange River Development Project Replanning Study suggests “Substantial scope for further development of the Orange River will still exist after completion of the Phase 1 of the LHWP and full utilization of the current infrastructure. About 1,735 million m³ per year (55m³/s) additional water could be abstracted from the Orange River on an environmentally sustainable basis.”¹⁹⁵

This discussion would be incomplete if there were no brief mention of the LHWP corruption cases. These cases illustrate how the LHWP has become a challenge to the country's fledgling democratic institutions and how the LHWP is about so much more than water, though it has different meanings for Lesotho versus South Africa. The LHWP has been plagued by bribes, corruption, and mismanagement; formal charges have been brought against at least ten (possibly as many as 19) of the companies involved in the project, and as well as the two consortia from Canada, Europe, and South Africa brought

¹⁹³ Bourdieu, *Outline of a Theory of Practice*, 192

¹⁹⁴ Axelrod, *Evolution*.

¹⁹⁵ Department of Water Affairs and Forestry (DWAF), South Africa, “Orange River Development Project Replanning Study: Main Report,” v.

in on construction contracts. According to Patrick McCully, author of *Silenced Rivers*, the companies¹⁹⁶ cited are among the Who's Who of dam construction, and include the German firm Hochtief, the French firm Bouygues, the UK firms Keir International and Stirling International, South African firms Concor and Group Five, and the Lesotho Highlands Project Contractors (international consortium which includes Balfour Beatty, Spie Batignolles, LTA, Züblin). By 2005, five of the corruption trials had been completed and several companies fined. The inconsistencies of management and money by the corporate executive, Mr. Sole, came to light when a democratic government came to power in Lesotho in 1993, took steps towards good governance, and the Lesotho Minister of Natural Resources called for an audit of the LHDA (Lesotho Highlands Development Authority) affairs. The corruption cases¹⁹⁷ offer an interesting perspective of IFI involvement and efforts at local influence beyond finances. During the initial investigation, the World Bank attempted to have Mr. Sole's suspension lifted.

South Africa and the Orange River

The histories of South Africa and the Orange River are rich and complex, but well beyond the scope of this dissertation. This section focuses on the riparian state politics from the hydro-political perspective of South Africa.

¹⁹⁶ For actual dollar amounts of bribes see Footnote 183.

¹⁹⁷ Extensive reference material is available on the LHWP corruption cases, including Lesotho public court documents and many NGOs. For more information, see *International Rivers* (<http://www.internationalrivers.org/>).

South Africa¹⁹⁸ is a semi-arid country, with an average rainfall of about 450 mm per year, well below the world average of about 860 mm per year. Eleven of the nineteen water management areas in South Africa are facing a water deficit, where the requirements for water exceed its availability. Its rivers are small in comparison with other countries. The mean annual runoff (MAR) from the Orange River under natural conditions is estimated at 12,000 million m³ per year. That includes approximately 4,000 million m³ per year originating from the Senqu River in Lesotho and 1,200 to 1,400 million m³ from the Caledon and Kraai, respectively, and another 3,900 million m³ per year from the Vaal River. The exception is the Orange River, which carries only about 10% of the volume of water flowing annually down the Zambezi River, and about 1% of the flow in the Congo River. Many of the larger rivers, like the Orange-Senqu and the Limpopo, are shared with other countries.

The Orange River represents the largest fresh water resource in South Africa, which, with an average runoff of over 11,000 million m³ under natural conditions, contributes more than 20% of the total rivers flow in the country. From its origins in the Lesotho Highlands, the Orange River continues some 2,300km to discharge into the Atlantic Ocean at Alexander Bay on the border between Namibia and South Africa. Its major tributaries include the Vaal, the Fish (from Namibia), the Caledon, and the Kraai Rivers.

¹⁹⁸ While not part of the ORB, South Africa shares both transboundary and boundary-contiguous rivers with other neighboring countries, including: the Limpopo River, shared with Botswana and Zimbabwe (contiguous), and Mozambique (transboundary); the Inkomati system, shared with Swaziland and Mozambique (transboundary); and the Usutu/Pongola-Maputo system, shared with Mozambique and Swaziland (transboundary).

As an international river, several international hydro-geological or hydrological conventions, legal principals, or international agreements posit that the Orange and its waters must be shared by all its basin states. As a general matter, cooperation in water matters concerning southern Africa states and the Orange River takes place within multiple frameworks, including but not limited to the 2000 Protocol¹⁹⁹ on Shared Watercourses in the Southern African Development Community²⁰⁰ (SADC) where activities relating to the implementation of the SADC Protocol are coordinated by the SADC Water Sector. Historically, SADC states have a long history of agreements, many predating the Protocol and Namibian independence, and others dating back to their respective colonial pasts. However, the OSRB riparian states have made a practice of entering into new agreements, like the Protocol.

For all their importance within South Africa, the proximity of rivers has not been a deciding factor in the development of key metropolitan and economic centers.²⁰¹ Most of the main metropolitan and industrial growth centers of South Africa developed not around major rivers or where water is found in abundance, but around important mineral resource discoveries, such as gold in the Johannesburg area, or along harbor-coastal sites, as in the case of major coastal cities of Cape Town, Port Elizabeth, Durban, and East

¹⁹⁹ Unless otherwise stated, all references to the Protocol in this paper refer to the Revised Protocol, signed in August 2000. The first attempt, however, toward ordering region-wide control over the use of shared watercourses in the SADC Region resulted in the 1995 Protocol on Shared Watercourse Systems in the Southern African Development Community. The 1995 Protocol was signed by 10 of the eleven members of SADC and went into force September 1998.

²⁰⁰ Created in 1980, the SADC was initially formed as a loose alliance of nine majority-ruled states (frontline states) in Southern Africa, known as the Southern African Development Coordination Conference (SADCC). The SADCC was formed in order to coordinate development projects as an effort to reduce the economic dependence and interdependence on then apartheid South Africa for the states involved in this conference. Since 1980, and the end of apartheid in South Africa, the organization's objectives have evolved. They have expanded beyond economic development into maintaining common political values, promoting peace and security, sustainable management of shared transboundary water resources, and other efforts with a view toward advancing development.

²⁰¹ Muller, "Inter-basin water sharing to achieve water security--A South African perspective."

London. In fact, most of these areas are remote from major rivers. This is similar to urban development in Namibia, Lesotho, and Botswana.

Pronounced imbalances occur between the availability and utilization of surface water in the country, resulting in several river catchments where the utilization of water already far exceeds the natural resource potential. To overcome the gap between water availability and water needs, South Africa developed sophisticated, comprehensive, well-engineered, and numerous inter-basin transfers (IBT) to assure water supply where it is needed. Inter-basin transfers of water allows the transfer of water supplies from areas where prevailing conditions may appear less critical, to areas which may be under severe drought conditions or experience inadequate water supply. IBTs involve very large-scale transfers, e.g. from the Orange-Senqu River in the Lesotho Highlands, to many smaller schemes mainly for urban and industrial supply as noted in Table 2 (Major IBTs). This technology and engineering mastery can be traced to South Africa's early territorial beginnings.

Frequently of significant hydrological environmental and political concern, IBTs are supported by national legislation. However, IBTs have complicated integrated river basin management and impacts for downstream riparian states, especially those in the Limpopo Basin.²⁰² There are numerous IBTs in the Orange (and Limpopo) River Basin, all of which have strategic and hydrologic importance to South Africa. These IBTs to and from the Orange/Vaal River system impact the adjoining river basins and neighboring states, and are part of the political background surrounding this discussion of

²⁰² Turton, "Hydropolitics and Security Complex Theory--an African Perspective."

the OSRB. As early as 1976, Prime Minister Balthazar Johannes Vorster underlined the political and material importance of dams. He wrote that:

*There can be no turning back from the husbanding of precious water resources to ensure that enough will be available and to maintain its quality. This will require the building of more dams and I am sure that men of vision and initiative will be found to do this in such a way that optimum benefits will be obtained.*²⁰³

Because of its size, strategic central location, and because it sustains about half the economic production and population of the country, from a national hydro-economic perspective the Orange/Vaal River system is the most important freshwater river resource in South Africa. Several major and strategic industries, numerous large mines, and most of the country's power stations (about 80%) are supplied with water from the Vaal River system, the main tributary of the Orange River within South Africa. Also, several of South Africa's most ambitious water projects undertaken are (or were) situated in the Orange-Senqu River Basin, including the Orange River Development Project (ORDP), the Vaal River development, and the Lesotho Highlands Water Project (LHWP). First proposed in 1962, the ORDP's purpose was to irrigate thousands of acres (hectares) of land in the Eastern Cape, Northern Cape, and Free State. The other main objective of the

²⁰³ This statement is from Balthazar Johannes Vorster, South Africa's prime minister from 1966-1978, and president of South Africa from 1978-79. He is quoted in the forward to Oliver's *Great Dams in Southern Africa*.

Table 2. Select interbasin (IBT) water transfers involving the Orange River in South Africa

Transfer Scheme	Source— International Basin	Recipient— International Basin	Average Transfer (MCM/year)	Use
Vaal—Crocodile	Orange	Limpopo	615	Industrial, domestic
Vaal—Olifants	Orange	Limpopo	150	Industrial (ESKOM) **
Assegai—Vaal	Maputo	Orange	81	Industrial, domestic
Buffalo—Vaal	Thukela	Orange	50	Industrial, domestic
Thukela—Vaal	Non-international Basin	Orange	630	Industrial, domestic
Orange—Buffels	Orange	Orange	10	Industrial, domestic
Orange—Lower Vaal	Orange	Orange	52	Irrigation, domestic
Orange Riet	Orange	Orange	189	Irrigation
Orange—Fish	Orange	Non-international basin	643	Irrigation, domestic, industrial
Fish—Sundays	Orange (via Fish)	Non-international basin	200	Irrigation, domestic
Caledon— Modder	Orange	Orange	40	Industrial, domestic
LHWP (1A)	Orange	Orange	574	Industrial, domestic
LHWP (1B)	Orange	Orange	297	Industrial, domestic

*Source: Adapted from Basson, van Niekerk, and van Rooyen (1997:54) and Bryan Davies and ** ESKOM (Electricity Supply Commission (Republic of South Africa industry)).*

ORDP is the generation and transmission of hydro-electric power. Eskom²⁰⁴ operates hydro-electric power-stations at both the Gariep and the Vanderkloof Dams, the largest storage dams in South Africa. The hydro-electric power station at the Vanderkloof Dam was the first power-generation station in South Africa situated entirely underground.

²⁰⁴ Eskom is an operation that generates and distributes electricity. It provides 95% of the electricity used in South Africa. Although its headquarters are located in Johannesburg, South Africa, Eskom Enterprises has operations in Uganda, Nigeria, and Mali, as well as many other sites on the African continent.

These dams are also connected by the Orange- Fish Tunnel. The tunnel's purpose is to transfer water from the Gariep Dam to the Easter Cape.

Preceded by the development of the ORDP by several decades, the Vaal River development can be attributed in part to the discovery of gold and the consequent economic growth in that region. Today, continued population growth, along with improved standards of living in the Vaal River supply area have placed demands for water in this part of the Orange-Senqu River Basin far in excess of the supply capability of local sources. As a result, water is transferred to the Vaal Basin from various parts of the country where water resources are more plentiful and 'surplus' water is available.

Requirements for water from the Vaal River, the main water source for the central industrial and mining regions of South Africa are augmented from several adjoining river basins, including the Usutu, Assegai, Tugela, Crocodile/Limpopo, and Olifants Rivers. Since IBTs to and from the Orange/Vaal River system impact the adjoining river basins in neighboring states, not part of the Orange-Senqu River Basin, the ORB cannot be viewed in isolation. Interbasin transfers (IBTs) of water allow the transfer of water supplies to areas which may be under severe drought conditions, from areas where the prevailing conditions may appear less critical. As previously stated, IBTs involve very large-scale transfers, e.g. from the Orange-Senqu River in the Lesotho Highlands, to many smaller schemes, mainly for urban and industrial supply. The import of water from other basins to the Vaal River System, the consumptive water use, effluent returns to the Vaal River, the export of water from the Vaal System and other related factors directly influence the water required for transfer from the Orange to the Vaal River. That in turn

directly affects the quantity, quality, and temporal distribution of flows discharged by the Vaal River into the Orange River.

South Africa asserts that this approach may provide some chance to buffer the country against disaster, though the possibility of such a disaster is remote and this tactic is an unsustainable practice. The DWAF (Department of Water Affairs and Forestry) senior specialist engineer, with whom I spoke, suggested that “. . . interbasin transfers has the inherent benefit of linking the resources of the country together over a large geographic area and affords the opportunity of operating the water resources in a synergistic systems context.”²⁰⁵ The high level of dependency by South Africa on IBTs for economic security and water supply is supported further in the National Water Act of 1998, which regards water as a national asset to be moved internally throughout the country as needed.²⁰⁶ In my initial interview with Mr. Tekateka²⁰⁷, a black South African delegate to the ORASECOM, he appeared to be arguing against the provision in the SA 1998 National Water Act that requires downstream consideration of upstream actions. Instead, he stressed the fundamental principle of the SADC Protocol, which directs the utilization of transboundary watercourse resources without prejudice to sovereign rights, i.e.

International water resources, specifically shared river systems, shall be managed in a manner that optimizes the benefits for all parties in a spirit of

²⁰⁵ Interview with Mr. Leo Van Den Berg, Senior Specialist Engineer, International Liaison, South Africa Department of Water Affairs and Forestry (DWAF), 2002. A similar sentiment was recorded in the main report of the 1999 Orange River Development Project Replanning Study.

²⁰⁶ Turton, Interview.

²⁰⁷ Mr. Reginald Tekateka has had several high-ranking positions in the water sector. When I first met him in 2000, he was Chief Delegate, Lesotho Highlands Water Commission for the Republic of South Africa (RSA). In 2003, he was the Chairperson, Orange-Senqu River Commission (ORASECOM) and Chief Delegate Department of Water Affairs and Forestry (DWAF). More recently, in 2007, he was again representing RSA. Mr. Tekateka is Chair of the Global Water Partnership of Southern Africa.

mutual cooperation. Allocations agreed for downstream countries shall be respected.

This SADC principle contradicts the exclusivity of state sovereignty in regards to water resources. However, at the time of this research, there were no clear examples of any specific instance where South Africa decided to suspend its water needs or strategic riparian advantage over the needs of a downstream riparian. South African water law regards all water in the country as a national asset to be utilized equitably by all, a position shared by other sovereign nations with regard to their respective water resources. This governmental beneficence has not traditionally extended across national boundaries.

South Africa has a long political history tied to its colonial, national, apartheid and post-apartheid independent state, the transboundary politics in the region, and past water practices. This history intimately involves the Orange River. As a result, there continue to be several long standing existing disputes in need of resolution, as well as emerging conversations regarding the transboundary waters of the Orange-Senqu River Basin. Given the water-stressed situation facing South Africa, the increasing demand for hydroelectric energy, and the elevating demands, it is no wonder that the utilization of this shared resource is growing into a politically contentious issue. South Africa's neighboring states continue to aggressively exercise their sovereignty; it is likely the existing conflicts will continue well into the future. South Africa has not moved far enough into the future²⁰⁸ for the problems of the past to have receded.

²⁰⁸ Axelrod, *Evolution*.

Agreements, Accords, River Basin Organizations and International Financial Institutions (IFIs)

Introduction

This section explores briefly the two cooperation regimes, the Orange-Senqu River Commission known as ORASECOM, the SADC Protocol on Shared Watercourses, and names and types of international donor involvement. The discussion begins at the basin level, follows with a brief overview of origins and purpose of the Southern African Development Community as an organization, and briefly describes the evolution of the Protocol. It concludes by highlighting international donor contributions and the purposes of their funding support. This research considered only multilateral agreements, which includes the Protocol, and the Orange-Senqu Basin Commission (ORASECOM), a discussion of which follows, and the Okavango River Basin Commission (OKACOM), which is discussed in the following chapter.

Over the past two decades, the involvement of international financial institutions (IFIs) in water affairs of the SADC region has been significant for both infrastructure projects, like the LHWP, and non-infrastructure activities like institutional development, capacity building, research, and monitoring networks. The World Bank had a central role in supporting the LHWP and exercised a key role in organizing its financing. More recently, IFIs and donor agencies have also become cooperating partners to building institutions and capacity for water resource management, river basin organizations, and regional- and basin- level cooperation regimes. They have also partnered with governments working to improve transboundary watercourse transactions. As noted

previously and in Table 3, the OSRB riparian states have been engaged in multiple bilateral agreements, but are signatories to only two multilateral ones. Only one of these multilateral agreements specifically concerns the Orange-Senqu River.

There are different actors and stakeholders engaged in this discussion at various basin, regional, and international levels. There are multiple regulatory arrangements for transboundary river basin management and cooperation. These arrangements include international agreements and conventions, as well as regional- and basin-specific agreements. There are also national water laws, policy, and legislation, but these fall outside the scope of this investigation. Table 3 lists the more significant ORSB basin-specific agreements, commissions, committees, and notes key management studies; however it is not intended to be all inclusive. Nonetheless, it illustrates the timing of the 1995 Protocol, ORASECOM, and 2000 Protocol, as well as various updates to the LHWP Treaty.²⁰⁹

There are complex technical, hydrological, and political issues and in the question of capacity. These have to do with the equitable sharing of the resources of the Orange-Senqu River and need to be addressed jointly by its co-basin riparian states, ideally within the context one of the existing multilateral cooperation frameworks. As I learned during my interview with Dr. Turton, ORASECOM is the first multilateral river basin organization post-SADC Protocol and “considered exemplary of successful river basin cooperation.” Nonetheless, the continued presence of many bilateral cooperation

²⁰⁹ According to Turton, the LHWP Treaty is one of the most comprehensive and detailed water-related, in that it contains very clear rules of a binding nature regarding the obligations and tasks of each party, is modified when necessary to layout specifics on cost allocation, financing, insurance, start dates of fixed royalty payments. In other cases, a new treaty protocol will contain language on the way the project is managed or reflect changes in the project’s governance system.

frameworks are likely to complicate matters, as most not only predate ORASECOM, but organize specific project activity, like Protocol VI to the LHWP Treaty or the Vioolsdrift and Noordoewer joint irrigation scheme. They intersect with the issues involved in a basin-wide water management project, but are not specifically involved in regulating those issues. To date, it is not clear how or if OSRB states will reconcile the differences in objectives, goals, and priorities in their use of river resources, or how they would resolve conflicts between project-specific agreements.

One could argue that the preponderance of multiple agreements, joint riparian commissions, joint technical committees, and cooperative relationships et cetera, are evidence of mechanisms to manage disputes, demonstrate high levels of cooperation, *or not*, and hydro-politics at best. On the other hand, cooperative relationships are also defined as exploitative structures that obscure the exercise of power.²¹⁰

Another emerging concern is recent rise in the number of the international actors contending for both RBO and individual riparian attention. These actors, with their insertion of resources not generally available locally (or regionally) are furthering not only power asymmetry, but defining cooperation priorities. International financial institutions providing foreign aid, determines how the resources can be used, and have a particular level of influence in the development of transboundary water cooperation regimes, particularly in the capacity of certain riparians to sustain the cooperation regimes by reinforcing hydro-hegemonic position of a particular riparian.

²¹⁰ Bourdieu, *Outline of a Theory of Practice*.

The Orange-Senqu River Commission (ORASECOM)

According to the Global Environmental Facility (GEF),²¹¹ several of the riparians' water resources in the southern African region, and in the Orange-Senqu River Basin are under high levels of stress. Increasingly, water scarcity is limiting these states' the ability to meet future demands. Further, because as the Orange-Senqu River Basin is an important international transboundary watershed under serious threat on many levels, many of these concerns cannot be addressed by either a single country or bilateral agreements. In recognition of the transboundary nature of these concerns as well as the SADC Protocol, the co-riparians of the Orange-Senqu River Basin agreed to establish a multilateral river basin organization.

The Orange-Senqu River Commission (ORASECOM) was established in November 2000, between Botswana, Lesotho, Namibia, and South Africa as the first multilateral river basin organization (RBO) established under the Revised 2000 Protocol for Shared Watercourse Systems of the Southern African Development Community (SADC). ORASECOM was to create a framework for multilateral riparian cooperation to investigate and make decisions about the future actions on dealing with the water management, water politics, and resource potential of the Orange-Senqu River Basin.

Its overall purpose is to strengthen regional cooperation of Orange-Senqu River basin riparians and facilitate economic development. The ORASECOM Agreement recognizes and refers to the Helsinki Rules, the 1997 UN Convention, and the SADC 2000 Protocol. It neither overrides or replaces previously negotiated or established bilateral agreements nor prohibits future bilateral agreements. However, in regard to the

²¹¹ Global Environment Facility (GEF), "Development and Implementation of the Strategic Action Program for the Orange Senqu River Basin," 9.

latter, post-ORASECOM bilateral agreements must meet its terms and comply with those of ORASECOM. Key objectives include the:

- Exchange of information and data
- Consultation on basin projects and advice to riparian national governments
- Development of a water resource master plan for the entire basin
- Improving public stakeholder participation, bottom-up, in river basin organization networks
- Implementation of cooperation projects funded by donor organizations, {which include (Global Environmental Facility (GEF), European Union (EU), GTZ (A German based international cooperation that funds sustainable development), and African Development Bank (AfDB).

In instances where national interest disputes occur, matters revert to political levels for negotiation. ORASECOM provides a useful and important forum to discuss water matters of mutual interest at the technical level. Technical solutions are usually based on factual data, of which there is a great deal on the Orange River, its infrastructure, and bilateral agreements. Additionally, the commission may initiate and execute studies to obtain facts and recommend technical solutions. There is a large quantity of available factual data, generated mostly by South Africa, which may be attributed to its history with the Orange and Vaal Rivers and its overall greater development in comparison to other SADC states. Technical disputes may be referred to the SADC Tribunal for resolution, but political disagreements and conflicts of national interest do not fall under the purview of ORASECOM. As this evidence suggests, the

Tribunal²¹² is seen as weak and incapable of resolving political or national interest conflicts.

ORASECOM has met regularly since 2001, and has served as a technical advisor to the Orange River basin riparians on enhancing institutional and human capacity, and matters of planning, development, utilization, and conservation of the OSRB. Up to early 2005, the organizational structure of the commission was limited to a council, with delegations from each country and three permanent members. They met twice a year, for three days, and made decisions through consensus.

Up to now, there have been limited results achieved by the commission, in part because ORASECOM is, according to Turton, “probably the most complex river basin organization in Southern Africa, because it involves so many riparians” (although not as many as the Nile or Zambezi) “and existing, often highly elaborate bilateral schemes, without necessarily having jurisdiction over these schemes.”²¹³ IFI donor involvement for ORASECOM may help to remedy some of that complexity by strengthening its capacity as an organization, enabling it to compile a current library of existing bilateral agreements, creating a basin-wide mega-database with *all* information, and by helping ORASECOM attract the appropriate staff. However, this donor involvement may also have negative effects as well; donors and NGOs frequently have their own agendas, which may serve to reinforce the hegemonic status quo within a particular region.

The complexity of ORASECOM as a river-basin organization, its many bilateral agreements, and ‘youth’ created many challenges. Its slow start may have been

²¹² Although established in 1992 by Article 9 of the SADC Treaty as one of the institutions of SADC, the inauguration and swearing in of its members did not occur until November 2005 in Windhoek, Namibia.

²¹³ Turton, “The Political Aspects of Institutional Development in the Water Sector: South Africa and Its International River Basins”

challenged further by the protracted restructuring of the region's water sectors at SADC. Despite its efforts to embrace an integrated comprehensive approach to the Orange-Senqu River Basin, integration of the water sector with other sectors remains low and slow.²¹⁴

Consistent with that observation and the hierarchy of barriers to cooperation pyramid in Figure 2, sovereignty, hydro-hegemony, and asymmetry are fundamental challenges that must be addressed before meaningful cooperation is able to occur. Each is attached to a specific cooperative barrier, all found at the base of the pyramid, which means they pose the greatest challenges to a quality cooperative regime. For example, in the instance of hydro-hegemony, it is the hydro-hegemon that determines the nature of transboundary relationships, but it may be sovereignty that influences the actions of a particular basin riparian. Integrated comprehensive basin management of water resources is an ongoing process that requires time, especially with one as complex as the OSRB. It may be too early to consider ORASECOM either a success or failure.

At this time, ORASECOM does receive considerable IFI donor support and is charged with the overall management of the OSRB basin. Still, ORASECOM faces several challenges, none of which will be easily overcome by such an inexperienced institution, especially given the history of the region. Like other cooperation regimes, especially in southern Africa, ORASECOM would benefit from the strengthening of river basin organizations generally; nonetheless, its foremost challenges remain:

- Inability to resolve sovereignty versus regional issues No matter what transpires in the OSRB, Namibia will continue to focus on resolving the Namibia-South

²¹⁴ Raadgever, Mostert, Kranz, Interwies, and Timmerman, "Assessing Management Regimes in Transboundary River Basins."

Africa boundary dispute (a shadows of the past obstacle) and asserting its sovereign right to draw water from the Okavango River (a territorial integrity obstacle);

- Maintaining substantive political will and involvement by riparians and by SADC water sector Riparian position being what it is, the pyramid correlates are: cost of cooperation, agreement process, and conflicting national/international interests (where the latter may be subject to IFI donor influences);

- Capacity constraints to develop basin strategies, harmonize projects, monitor, or share and evaluate technical information (the shadows of the past and asymmetry are the dominant obstacles influencing these constraints);

- Resource capture, mobilization, and management (the corresponding pyramid obstacles are conflicting national/international interests for OSRB riparian states, riparian position, and technical uncertainties);

- Various disparities among member states, such as economic development capacity, despite the fact that Namibia, Botswana, and South Africa are the most economically developed in the region and OSRB basin (here, asymmetry is the obstacle, as there are significant differences that exist *and* will persist. Namibia, for example, is a large country with a small population and less economic diversity than South Africa. Lesotho is both a small country with a small, mostly rural, population that boasts water as its principal source of wealth, among riparians with very little water); and

- Development of strong stakeholder and public participation around the issues and at the catchment level (this becomes an obstacle because the majority of the population is dispersed and resides in rural communities.).

Because existing agreements in the ORB merely liaise with it and ORB riparians retain the sovereign right to establish bilateral agreements with one another within the ORB, ORASECOM does not threaten the dominant status of South Africa with regard to the hydro-political configurations in the basin.²¹⁵ ORASECOM makes no demands on South Africa to significantly alter its political behavior or hydro-politics. South Africa remains the hydro-hegemon, does not have to concede to Namibia's challenge over the existing Orange River boundary demarcation, and need not alter its sovereign position.

International Agreements and Conventions

The SADC Protocol is the dominant regional treaty for shared transboundary watercourses in the southern Africa region. There are, however, international agreements that influence regional agreements, cooperative efforts, and have been used to advance an individual state's interests. Additionally, at the state or basin level there are several cooperation-based treaties, accords (agreements), conventions, national laws, and policies that focus on transboundary water resources or ecosystems. The 1977 Ramsar Convention on Wetlands of International Importance is one example of such an international treaty. As observed in Table 3 (Chapter 3) on the local level, agreements are both bilateral and multilateral. A centralizing theme of these treaties and conventions

²¹⁵ Turton, "Hydro-Hegemony in the Context of the Orange River Basin."

is that states are entitled to utilize and manage resources within areas of their respective jurisdictions. Many conventions and international agreements are not binding; instead their enforcement may depend upon either a real commitment on part of an individual signatory or the presence of an influential hydro-hegemon able to corral basin riparians through the exercise of soft power. LeMarquand might view the commitment on the part of SADC states to international agreements as consistent with his concept of *image*.

Examples of four international agreements-conventions important to management and sharing of transboundary water resources are noted in the table below. With one exception, the 1971 Ramsar Convention on Wetlands of International Importance,²¹⁶ Angola is a signatory to each of the others. Generally, the principles espoused in the international conventions attempt to delineate the rights of riparian states to access and use the water resources of transboundary water resources. Fundamentally, these international transboundary water conventions attempt to balance riparian use with

Table 4. Select International Agreements-Conventions Important to the Management and Sharing of Transboundary Water Resources to which OSRB riparians are signatories

<i>International Convention/ Treaties and Dates</i>	<i>Requires</i>	<i>Riparian States</i>
Ramsar Convention on Wetlands of International Importance (Ramsar Treaty), 1971 <i>(Framework for national action and international cooperation for the conservation and wise use of wetlands and their respective resources.)</i>	Requires: (a) formulate plans that promote conservation of wetlands in their territory, (b) consult with other contracting parties regarding the implementation of the convention's obligations.	Botswana Namibia South Africa Lesotho
United Nations Convention on the	Equitable, reasonable utilization	Angola Botswana

²¹⁶ Specifically, this refers to the Convention on Wetlands of International Importance especially as Waterfowl Habitat (amended in 1982 and 1987). From this point on, I will refer to this convention as either the Ramsar Convention on Wetlands or the Ramsar Convention.

<p>Law of the Non-navigational Uses of International Watercourses, 1997</p> <p><i>(This Convention is considered to be a 'framework convention', which is somehow different as applied than others, in that it needs further elaboration and specifications.)</i></p>	<p>(Article 5) and the No-harm Principle (Article 7) are the cornerstones of the Convention, with cooperation as the essential feature (Article 8). The Convention does not prevent states from departing from its general principles nor affect existing watercourse agreements.</p>	<p>Namibia Lesotho South Africa</p> <p><i>(All voted in favor of the Convention)</i></p>
<p>Convention on the protection and use of trans-boundary watercourses and international lakes (Helsinki Convention), 1995</p>	<p>Signatories take measures to prevent, control and reduce any trans-boundary impact by ensuring (a) trans-boundary waters are managed in a rational, environment-friendly manner; (b) trans-boundary waters are used in a reasonable and equitable way; and (c) conservation and restoration of ecosystems.</p>	<p>(Rules are nonbinding, but conceptual rules framework were incorporated into the Revised SADC Protocol 2000)*</p> <p>*The 2000 Protocol is preceded by the 1995 Protocol on Shared Watercourses in the Southern African Development Community (SADC) Region.</p>
<p>United Nations Conventions to Combat Desertification (UNCCD), 1996</p> <p><i>(Concerns problems associated with widespread degradation of land in arid, semi-arid and dry sub-humid areas.)</i></p>	<p>Requires actors to: (a) promote cooperation among affected parties in the fields of environmental protection and conservation of land and water resources, related to drought and desertification; (b) undertake sub-regional, regional, and international co-operation; and (c) cooperate in the preparation of, and harmonize/complement desertification.</p>	<p>Angola Botswana Namibia South Africa Lesotho</p>

the doctrines of absolute territorial sovereignty, territorial integrity, limited territorial sovereignty and integrity, and sustainable management.

As noted, these regional- and basin- specific agreements have not adequately dealt with transboundary water-sharing political concerns. These concerns are:

- How to define and manage water apportionment among basin states considered by all riparians as equitable and “fair”, however defined;
- Riparian differences of water use priorities;
- Compensation by one riparian for damage caused by another;
- Variance in riparian water scarcities;

- Prior appropriation or existing historic vested or ancient rights claimed by hydraulic civilizations, where new water demands conflict with natural or historic water needs and interests.

Regional Framework for Transboundary Watercourses—SADC Protocol on Shared Watercourse Systems (herein referred to as the Protocol)

The Southern African Development Community (SADC) initiated the SADC Protocol on Shared Watercourse Systems and its subsequent iterations. One of the key objectives of the SADC Protocol is to harmonize transboundary water policies within transboundary river basins and seek basin management of resources. When established, SADC choose transboundary watercourses as its first policy focus. This is an issue of pragmatics; many SADC countries are approaching situations of water stress (less than 1700 m³ per capita per year) or absolute water scarcity (less than 1000 m³ per capita per year).²¹⁷ The Protocol is unique in that its intent is to create a regional management framework and regulatory structure for the use of fifteen transboundary (international) watercourses in the fourteen SADC countries. In its own words, “the SADC Water Division has been tasked with creating the enabling environment for the integrated management of shared watercourses on a regional rather than national level. The two pillars supporting this integrated approach are the Protocol on Shared Watercourses and the Regional Strategic Action Plan (RSAP).”²¹⁸

²¹⁷ Works discussing this further include Falkenmark and Lundqvist’s “Looming Water Crisis: New Approaches Are Inevitable,” and Gleick’s “Water and Conflict: Fresh Water Resources and International Security.”

²¹⁸ From the SADC website, <http://www.sadc.int>, downloaded 05/2005.

SADC, through its African Transboundary River Basin Support Programme, receives international donor funding for various activities concerned with transboundary water cooperation, which specifically include technical assistance to ORASECOM. Thus, SADC serves as a funding pass through for its member's activities. For example, GTZ funds an appointed SADC task force that has as one of its goals the harmonization of water policies.

International Financial Institutions (IFIs)

In the case of the Orange-Senqu River basin, many of the international financial institutions and donors have funded projects that support transboundary watercourse cooperation, specifically that of ORASECOM. This findings' origins are unclear; did a donor indicate interest? Did ORASECOM issue a request? Does this represent a shift in the politics by the global donor community to prioritize water management? Or does this represent the powerful voices of a few who used the dominant and persuasive power of South Africa as a hegemon in the basin and as a stabilizing force in the region? Arguably, as evidenced by ORASECOM and SADC IFI involvement, there are several willing donors contributing funds to these efforts.

Key IFI donors include the Global Environmental Facility (GEF), the European Union (EU), GTZ (a German-based international cooperation that funds sustainable development), the African Development Bank (AfDB), the United States Agency for International Development (USAID), the European Development Fund (EDF), and the United Nations Development Program (UNDP).

As noted below, there are many IFI donors engaged at various levels of network building, capacity development, expanding research and technological gaps, and promoting, by their involvement, governmental transparency. However, it is not clear if these lending practices are extending the scope of trust in a participatory direction by broadening the democratization process through opening networks of information and increasing general involvement in OSRB hydro-politics. In pre-independent Namibia and apartheid-South Africa, the exclusivistic government and associated NGO networks supported the water needs of urban-industrial white populations and secondary cities or the white farmer-agricultural community. The LHWP offers an excellent example of how South Africa was able to obtain IFI financing and donor (World Bank) support to further its interests. In these post-apartheid, independent Namibian times, it is not clear if efforts by current IFI donor networks are doing more than continuing to support privileged stakeholders and, to a lesser extent, governmental bureaucrats through maintaining the status quo. However, its lending practices could potentially lead to increased governmental transparency, build institutions, and develop research institutions able to lessen asymmetries associated with power and technical disparities. Toward that end, it is useful to know who the IFI donors are and their particular interests in the region. There was no attempt to identify and catalog all IFI donors active in the OSRB, only the key ones.

Each IFI donor is explained briefly along with their transboundary water cooperation funding effort for either the individual riparian or in ORASECOM. The World Bank and its agents (GEF, IDA, etc.) could promote transboundary watercourse cooperation by creating incentives for developing consensus on the acceptable behavior

of riparian states within the basin by providing funding for researching technical information. More often, however, these organizations fund water supply and development infrastructure within each independent state, as opposed to treating the region as a whole.

Selected Donor Portfolio Profiles

The list of donors and the funding purposes are not all inclusive. In fact, only significant donor institutions are discussed and without reference to actual dollar amounts, as in many instances it was unavailable.

1. GEF is funding ORASECOM for a project to improve management of the Orange-Senqu River Transboundary Basin through the implementation of a sustainable program of policy, legal and institutional reforms and investment options using the technical assistance or science and technical analysis. As an international donor effort, GEF does not address issues of sovereignty, or other factors identified in the base of the cooperation pyramid as obstacles to full quality cooperation. A financial entity working under the auspices of the World Bank, the GEF finances projects to addressing six critical threats to the global environment: loss of biodiversity; climate change; degradation of international waters; ozone depletion; land degradation; persistent organic pollutants. The Global Environment Facility is one of three implementing agencies of the World Bank. It serves as the financial mechanism for the Convention on Biological Diversity, the UN Framework Convention on Climate Change and the Stockholm Convention on Persistent Organic Pollutants (POPs). GEF financing is provided to eligible countries through the World Bank, United Nations Development Program (UNDP), United Nations

Environmental Program (UNEP), and four regional development banks, which includes the AfDB.

2. The German Technical Cooperation or GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit) is a German-based international cooperation, owned by the German Federal Government, which funds sustainable development. It promotes transnational and regional cooperation efforts in a number of locations throughout the world. GTZ emphasizes good governance, a concern for the environment, and social development.

Currently, GTZ funds advisory services at the national level specifically for the Orange-Senqu River Commission through an appointed SADC task force, which has as one of its goals the harmonization of water policies. This task force gives the member states advice on adapting their policies and legislation to the principles of the SADC protocol. GTZ provides financial support to train the ORASECOM secretariats in the development of their legal, institutional and organizational structures. GTZ is also training experts from the water management authorities of Angola and Namibia with the aim of preparing their respective staffs for implementing a joint drinking water project in both countries in the Cunene region.

3. European Development Fund (EDF) was created by the Treaty of Rome in 1957. It is the primary financial instrument providing community aid for development cooperation within the countries of Africa, the Caribbean, and Asian Pacific. Funded by the European Union's member states, the EDF finances any projects or programs which contribute to the economic, social or cultural development of the countries in question. It

consists of several instruments, including grants, risk capital and loans to the private sector. Through SADC, EDF is funding:

. . . institutional strengthening for the management of the Orange-Senqu River Basin and for the development and implementation of basin-wide water conservation, management and environmental protection policies and strategies.

More specifically, the project will focus on the following result areas:

*Institutional and Organisational Strengthening (ORASECOM); Capacity Building on Shared Water Course Management; Development of a Shared Information System for the Purpose of Obtaining a Common Understanding for Decision Making; Enhancing ORASECOM Communication and Awareness Building; Development of the River Basin Master Plan (including studies of transboundary interest); Promotion of Water Conservation and Environmental Strategies and Policies.*²¹⁹

4. The African Development Bank (AfDB) is a regional multilateral development finance institution established in 1964. Its shareholders include 53 African countries and 24 non-African countries from the Americas, Asia, and Europe. The AfDB works in close cooperation with other international financial institutions (IFIs), including those of the World Bank Group, and provides complementary funding for joint projects and initiatives.

5. The United Nations Development Program (UNDP) is funding a multi-phased Strategic Action Program (SAP) for the Orange-Senqu River Basin to improve the management of the Orange-Senqu River Basin's transboundary water resources through

²¹⁹ EDF (European Development Fund) is an international cooperating partner with SADC. Its URL is <http://europa.eu/scadplus/leg/en/s05032.htm>.

Integrated Water Resource Management (IWRM) approaches that remediate threats and root causes. The objectives of the project are to identify the principal threats to the transboundary water resources of the Orange-Senqu River Basin and to implement through a structured process, a sustainable and cost-effective program of policy, legal and institutional reforms and investments to address them. According to the UNDP, there is no strategic action program or transboundary diagnostic plan for the OSRB, both of which this funding-supported exercise is designed to remedy.

Once the SAP is developed, the UNDP expects its implementation will be funded by non –GEF resources. Although it is not clear where funding resources will be secured, this effort is one of the more significant, as each of the OSRB riparian governments and ORASECOM are partners, along with GEF, community-based organizations, and, of course, the UNDP.

6. The African Centre for Water Research (ACWR) is an independent research and capacity building organization based in Cape Town, South Africa that works in partnership with regional and international organizations to promote integrated management and sustainable development of water resources in southern Africa. Invited by ORASECOM and funded by TRANSNET-Program of InWent (Capacity Building International) of Germany, ACWR developed the ORASECOM “roadmap for stakeholder participation”. Led by ACWR, this effort involved collaboration between the Commission, regional water professionals and InWent the international development partner.

Shadows of the Past

While history often shapes national identity, a particular type of historical past does not always guarantee a particular type of future. That is, having been a colonized state does not mean that state is doomed to constantly carrying that historical burden. While cooperative relationships may be the venue for consensus *and* contest, they may also be the setting where the shadows of the past offer clues to future possibilities. When it benefits a particular actor in a particular manner, as in the case of South Africa in the Orange-Senqu River Basin, or in the case of Egypt with regard to the Nile, there is a tendency to defend and preserve the certainties of the past as a failsafe guide for future and strategic advantage. Alternatively, co-riparians may decide to renegotiate colonial water treaties²²⁰, as in the case of the Nile River Basin. Several Nile Basin riparians have decided to ‘dump’ the colonial water agreements and pacts, and subsequently sign a newly negotiated agreement for Nile water utilization.

The legacy of colonialism is not compulsion, despite fears to the contrary. In the OSRB, three of its riparians, Namibia, South Africa, and Botswana, are approaching water crisis or scarcity: Both in terms of supply future water needs and because of the water-energy production linkages. South Africa’s history and continued role as a political and hydro-hegemon in the OSRB has burdened it with the leadership role of facilitating water cooperation as a SADC member, signatory to several multi- and bilateral agreements, including ORASECOM, providing data and research, and appearing to be compliant by not acting in a coercive manner

²²⁰ In the case of Europe, instead of ‘colonial’ established water agreements, a comparable reference would be “agreements established under the rule of the former USSR.”

Provided negotiations go forward, the new agreement will, by design, terminate the two agreements signed during the colonial era: the 1929 Nile Water Agreement and the 1959 Agreement for the Full Utilization of the Nile that had given Egypt and Sudan extensive rights over the river's use. The latter also gave Egypt a de facto right to veto any project using Nile water in other riparian states, despite the fact that it portioned out all of the Nile's water.²²¹ In the case of the Nile River Basin, an independent Tanzania stated that it did not and would not recognize colonial signed treaties. In this case, the 'shadow of the past' contributes to the establishment of a new agreement regime among Nile Basin riparians and has not been separated from the hierarchy of cooperation.²²² Namibia has seemingly taken a similar position, even though South Africa has not. By introducing language in its Constitution that specifically reaffirms accepted established international norms regarding contiguous river boundaries and recognition of territorial integrity, Namibia has directly challenged the OAU resolution (a declaration-resolution routed firmly in the past) and past colonial water agreements to which it was neither signatory, nor part of initial determination.

²²¹ Chacha Mwanza, a writer for *The Guardian*, had an exclusive interview with the Minister for Water, Dr. Shukuru Kawambwa. Dr. Kawambwa told *The Guardian* that relevant ministers from ten Nile Basin countries would meet in Cairo mid-next January to sign the Nile Basin Cooperation Framework as independent states. He added: "We have been discussing the matter since 1999. This is due to the fact that the water issue may cause war among stakeholders. We hope this will be the last meeting to end the decades-old treaties." He maintained that soon after independence, Tanzania made it clear that it did not recognize all signed colonial agreements on its behalf, including the 1929 Nile Water Agreement. Further information is available at <http://www.ippmedia.com/ipp/guardian/2006/12/12/80222.html>.

²²² This brings in some of the issues associated with the "Treaty/Agreement Process" section in the pyramid in Figure 2.

Conclusion

“A little water clears us of this deed.” Shakespeare, Macbeth, Act 2, Scene 2.

In most instances, one assumes that water issues are the focus of transboundary water cooperation regimes. As observed in the case of the Lower Orange River southern boundary dividing the territories of Namibia and South Africa, however, it is not just the issue of water. The conflict extends well beyond shared water, apportionment, and access. They involve territorial control over mineral resources (diamonds, gas reserves, and zinc), off-shore fishing rights, and the realignment of colonial borders—the shadow of the past, asymmetric power, and regional hydro-hegemonic dominance. “A little water” access to the lower Orange River on the part of South Africa to Namibia will not resolve the dispute between the two nations satisfactorily.

South Africa and Namibia are not at war, but it would be difficult to sustain an argument that posits that there is no conflict between the two states -- low levels of conflict perhaps, but conflict nonetheless. Within the ORB, water is scarce. Since South Africa is the hydro-hegemon, it has secured its water supply, and dominates among its co-riparians. South Africa’s riparian position, downstream from Lesotho, has not prevented it from building the necessary infrastructure required for resource capture inside the sovereign territory of Lesotho. Further, South Africa has the military, political, economic, technical and knowledge power to sustain its actions as far as the LHWP is concerned. This advantageous positioning is, in part, a geo-political colonial legacy. This same legacy has positioned SA in such way that the state is able to maintain this

colonial hegemony, even as it struggles to resist its own dark, internal shadows of the past.

Cooperative agreements and treaties merely reinforce South Africa's power position. Since hegemons exist because they can constantly reinforce that hegemony, they benefit from that status and guarantee its continuance. In both the Upper (UORB) and Lower (LORB) Orange River Basin, the extreme power asymmetry of the hydro-hegemon, South Africa, ensures its ability to influence the nature of cooperation among OSRB riparians. In the OSRB, South Africa has the political power, as well as the technical capacity, to either sustain its position, resist change, or alter the political dynamic in such a way that all future uses (and users) of the OSRB will depend upon the continuous weakening of its riparian competitors. Given the potential negotiating influence of Botswana in the ORB, and the exercise of its corresponding bargaining hydro-political power (power supported by international interests and South Africa) in the Okavango River Basin, Botswana could reinforce South Africa's hydro-hegemony and power asymmetry. It will not itself become a hydro-hegemon, but will instead assist South Africa in continuing its regional dominance.

In the matter of Namibia and South Africa, the 'practice of cooperation' identifies a set of complex relationships and attitudes used in negotiation and evaluation of relationships between the two states that have not only shared an intimate geo-political history on matters of mutual sovereign interests, but also securitization of their respective borders and long-term economic interests. What is clear is that Namibia understands that the ORB boundary water issues cannot be addressed without addressing the broader and more basic politics of statehood.

Lastly, we observe that when regional institutions try to engage in transboundary watercourse cooperation efforts, there are the international actor investments that contend for basin organization and individual riparian attention. These actors, with their insertion of resources not otherwise available locally or regionally, are furthering not only power asymmetry, but defining cooperation priorities and establishing the agenda. International financial institutions providing foreign aid have a particular level of influence in the development and continuation of transboundary water cooperation regimes, particularly in the capacity of certain riparians to simultaneously sustain the cooperation regimes and hydro-hegemonic position of a particular riparian.

Will these same themes be evident in the Okavango River Basin? Several of the actors are the same; these are Botswana, Namibia, and South Africa. Lesotho is no longer a significant riparian, but the water resources from the LHWP may potentially become an asset for consideration. There are also entirely new actors, like Angola, whose riparian position is important, but comes with daunting challenges. As we move into the next case study, it will be important to remember that the shadows of the past follow; Botswana retains its hydro-political leverage, and, in a very peculiar manner, South Africa retains its hydro-hegemonic status.

Table 3. Multilateral and Bilateral Water Sharing Agreements, Treaties, Protocols, and Key Studies for Riparian States in the Orange-Senqu River Basin (OSRB) (Multilateral Agreements in bold text)

WATERCOURSE	BASIN STATES	WATER SHARING AGREEMENTS, TREATIES, PROTOCOLS, AND KEY STUDIES	APPROXIMATE DATES
<p>Orange-Senqu River Basin (ORB)</p> <p><u>Includes riparians:</u> Botswana Lesotho Namibia South Africa</p>	<p><i>Namibia</i> <i>South Africa</i></p> <p><i>Lesotho</i> <i>South Africa</i></p>	<ul style="list-style-type: none"> Germany and Britain (Treaty establishes the river border between the two colonial powers on the Northern Bank (Namibia) of the Orange River) Lesotho and South Africa (Implementation of the Lesotho Highlands Water Project (LHWP)) Namibia and South Africa (Control, development and utilization of the water resources of the Orange River) Lesotho and South Africa (Protocol IV to the LHWP Treaty: Supplementary Arrangements regarding Phase IA) Lesotho and South Africa (Ancillary agreement to the deed of undertaking and relevant agreements entered into between LHDA [Lesotho Highlands Development Authority] and South Africa) Namibia and South Africa (Establishment of a Permanent Water Commission (PWC)) Namibia and South Africa (Vioolsdrift and Noordoewer Joint Irrigation Scheme) 	<p>1890</p> <p>1986</p> <p>1987</p> <p>1991</p> <p>1992</p> <p>1993</p> <p>1993</p> <p>1995</p>
<p><i>SADC Member states establish and sign the 1995 Protocol on Shared Watercourse Systems. Protocol concerns all International River Basins in the SADC Region. 1995</i></p>		<ul style="list-style-type: none"> Lesotho and South Africa (Protocol VI to the LHWP Treaty) Lesotho and South Africa (Joint Permanent Technical Commission [JPTC] of the LHWP) Orange-Senqu Basin Commission established [Botswana, Lesotho, Namibia, and South Africa] 	<p>1999</p> <p>1999</p> <p>2000</p> <p>2000</p>
<p><i>Amended SADC Protocol on shared Water Course Systems to incorporate issues contained in the 1997 “UN Convention on the Law of Non-Navigational Uses of International Water Courses” and includes concerns of member states expressed in June/July 2000, meeting in Windhoek, Namibia. The 2000 version supersedes the 1995 version and is referred to as either the Revised Protocol or The Protocol.</i></p>		<ul style="list-style-type: none"> Lower Orange River Management Study (RSA/ Namibia) Lesotho Highlands Water Project Further Phases Pre-Commitment Study Feasibility Study for the sustainable development of Molopo-Nossob Watercourse 	<p>2004</p> <p>2004</p> <p>2004</p>
		<ul style="list-style-type: none"> Integrated water resources management plan for Orange-Senqu Basin 	<p>2005</p>

Sources: Actual Agreement or Treaty, Atlas of International Freshwater Agreements, Interview with Drs. Anthony Turton and Peter Ashton, South Africa, 2002. Many of the agreements entered into between South Africa and its neighboring states occurred during periods of political tension that occasionally involved cross-border raids by the South African Defense Force (SADF), Interview 2002, Turton, University of Pretoria, Pretoria, South Africa.

This research asserts that riparian states are more likely to focus on territorial and sovereignty issues where they can leverage their power to obtain their respective goals rather than on cooperation over water resources. For states where water is particularly scarce, increasing water supply may be one of several goals, even if it is not clear that a particular water agreement is the mechanism by which that goal can be met. Although water conflicts are a low-level source of conflict, one should not dismiss water as a good reason for cooperation. The international agreements negotiated for water cooperation still serve a useful purpose.

In their survey of over 130 international environmental agreements, Haas and Sundgren²²³ examine a number of political variables (e.g. year of treaty, subject of treaty, sovereignty issues affecting treaty outcomes such as hegemonic influences and regime types) and the impacts those variables have on the negotiation process. Their analysis considered three indicators of treaty effectiveness: (1) whether or not the major polluters/users of a resource are parties to the agreement; (2) how quickly the agreement enters into force; and (3) the subjective impressions of knowledgeable observers of a treaty's effectiveness. As there is no 'indicator' or surrogates for environmental effectiveness, their analysis is lacking in explaining environmental effectiveness. Indeed, the authors indicate, “. . . it is extremely difficult to establish the impact of these treaties on improving the quality of the environment, which is their nominal objective”.²²⁴

In regions where watercourses are transboundary and shared among water scarce states, nations experiencing water shortages may decide that the way to address the issue

²²³ Haas and Sundgren, “Evolving International Environmental Law.”

²²⁴ *Ibid.*, 409.

is to prevent shortages by gaining control over watercourses. Alternatively, another approach might be for a nation to take any range of actions that lessen its vulnerability to water shortages. Thus, when nations decide to address the threat of water scarcity they may also decide to suppress the conflicts that such ecological change induces by improving its capacity and ability to ameliorate its water future shortages. This process extends the scope of types of water conflict to include the future. Namibia can now accuse Botswana, its co-riparian, of taking actions that interfere with Namibia's future water security, because of Botswana's proposed pipeline diverting water from the Kavango River (Okavango River) to meet water demands in Windhoek.

In the Okavango River Basin, Botswana behaves as the temporary hydro-hegemon, drawing on South African and international support. This is only a temporary status because of the rapidly changing economic and political dynamics among Okavango riparians. Presently, Botswana decided to have the Okavango Delta declared a Ramsar site in 1996 without involving Namibia or Angola. Involving Angola may have been exceedingly difficult, as it was engaged in a long-standing civil war at the time Botswana was seeking the Ramsar designation; Botswana as a sovereign state was completely within its rights to negotiate protections and designation of the Delta without consultation with its co-riparians. Even if Botswana had consulted Namibia, the Delta may have still been declared a Ramsar site.

Botswana's actions may have unintended long-term consequences. Under this scenario, controversies over shared international watercourses arise from questions concerning the distribution of externalities. In this instance, Botswana *chose* not to consult with Namibia either, a political and hydro-strategic decision on the part of

Botswana. Had Namibia been a consulting party, it may have voiced strong objections to such a designation in an effort to protect its sovereign right as the upstream riparian. This new designation might impact Namibia's ability to divert Okavango water within its territorial boundaries in order to meet its growing water demands. Still, since the Okavango Delta is within Botswana sovereign boundaries, as a sovereign state it was completely within its rights to negotiate protections and designation of the Delta without consultation with its co-riparians.

With the sheer quantity of international and environmental agreements frequently taken for granted, it is important to recognize that reaching cooperation agreements is difficult. The mere existence of a treaty demonstrates the existence of some level of cooperation and negotiation between these sovereign states. However, a deeper level of cooperation would be demonstrated by actually implementing the agreements discussed. This point of the conversation is difficult to reach. The states involved are navigating political boundaries, degrees of water interdependence, degrees of water scarcity, and access to alternative water resources. All these concerns create a complex web of linking the myriad political, geographical, and social concerns between these states. This web links issues that may only be tangentially related to the issue of transboundary water resources management, such as defining borders, redressing past grievances, the historical relationships between actors, exercising sovereignty over other natural resources, or seeking concessions on other, non-hydrological issues.

In Chapter Two, I argue that there is a hierarchy of obstacles to cooperation which must be addressed before quality cooperation over shared freshwater resource is likely. While all the obstacles apply to a greater or lesser degree, those in the shaded section

below the heavy line are more difficult to overcome. If not resolved, these issues are most likely to interfere with the ability of riparians to engage in positive conflict and achieve quality cooperation. In the following paragraphs, I would like to return to the conceptual pyramid in order to make more explicit two or three factors in order to discuss their impact on the Orange-Senqu river basin.

The questions posed by individual shared watercourses, the riparians involved with these watercourses, and the need to determine how that one resource will be shared and protected are all recognized as hydro-political foreign policy challenges where cooperation regimes and relationships are dependent upon factors outside the water sector. As illustrated in the OSRB case study and represented in the pyramid's base as discussed in Chapter Two, the dominant significant real politics are precisely that: *sovereignty, hydro-hegemony, and asymmetry, and upstream-downstream and national and international interests*. These factors have little to do with water *per se*, but which still spill over into the discourse surrounding water cooperation. From a practical and material perspective, Namibia wants the river boundaries where it shares the Orange-Senqu River redrawn—a desire based on sovereignty, national, and international interests. Doing so will allow Namibia to reclaim and reassert its sovereignty in ways that its participation in ORASECOM will not. In this case, water issues are embedded in the larger politics of sovereignty and the shadows of the past, as the current boundary is a remnant of South Africa's rule over Namibia. By refusing to passively accept this boundary, Namibia is pushing against South Africa as the hydro-hegemon.

For the other riparians, the obvious issue is water-use. While the Orange-Senqu River basin is important to all four riparian states—South Africa, Namibia, Botswana and

Lesotho—the latter two, Botswana and Lesotho, both upstream, use little of its water. In fact, Botswana uses none and Lesotho's current use is low and mostly non-consumptive, as the water collected is used for hydro-power generation. This is especially striking when one considers that Lesotho controls the river's headwaters. However, the most significant benefit for Lesotho's powerful location is actually derived from the transfer of the Orange-Senqu water into the South Africa through the LHWP, not through any of the benefits associated with more obvious water-uses.

This seeming paradox demonstrates out the *number of countries* and *upstream-downstream* factors located near the base of the pyramid. Four countries are part of the OSRB basin. Two make no great demands on its waters. The other two, Namibia and South Africa, are heavily dependent upon the outcomes of agreements concerning the OSRB waters. These two countries are, however, better equipped nationally to make strategic (and political) decisions regarding alternative water sources and new technologies.

The most significant treaty for OSRB cooperation is a bilateral one between South Africa and Lesotho for the LHWP. The one multilateral agreement, ORASECOM, still struggles to establish itself, and is subject to the possibility that Botswana may exert its position to obtain water from Lesotho in the future. Botswana would have a variety of reasons for doing so, especially since if it acted in support of Namibia's sovereign claims in the OSRB in exchange for not Namibia *not* exercising its sovereign claims by extracting water from the Okavango River basin, where both are riparians *and* members of OKACOM. Botswana's primary interests in ORASECOM are both strategic and

diplomatic. Though water is an important consideration, the issue is less about water and more about politics.

South Africa has been and continues to be a powerful actor in water politics—*hydro-hegemony*. However, while that position is subject to change, albeit not by much, what is less clear is how the state of South Africa will hold onto its power and influence in the basin, as the clear hydro-hegemon, while also protecting its ability to meet its growing and future water needs, much of which will be supplied by the Orange-Senqu River. It has to accomplish these two goals while not alienating its co-riparians. Another state replacing South Africa as the hydro-hegemon or regional hegemon is highly unlikely. As the hydro-hegemon, one that attracts major IFI donor funding for research, capacity building, knowledge and policy development, all while supporting a large water elite, South Africa is positioned to use its position and power to enable quality cooperation while simultaneously securing its future water supply. One might argue that, as the country with the largest population with the most dynamic and complex economy, South Africa's water needs *must* be met. It is unclear, at this time, whether such a need will compromise prospects for quality cooperation in the Orange-Senqu River basin. In fact, there is at least one argument that suggests South Africa's advantages and past cooperation efforts, although mostly bilateral, may contribute to strengthening ORASECOM by growing its institutional knowledge and contributing existing and mostly uncontested hydrological data.²²⁵ Further, as the section on hydro-hegemony

²²⁵ Malzbender, Manzungu, and Turton, *A Preliminary Basin Profile of the Orange/Senqu River*.

posits, a hydro-hegemon has both hard and soft dimension. It can exercise power in such a way that weaker states, having limited alternatives, may coordinate with and respond positively to the hydro-hegemon's use of power to secure and stabilize efforts at transboundary water cooperation and their respective regimes.

The case studies in this research provide examples of the circumstances in which history is important in the areas of influencing transboundary water cooperation. Specifically, these case studies focus on the geo-political legacy; knowledge, experience and institutions; and political realignment. As can be seen in the case studies that follow, it appears cooperative events surpass the numbers of conflicts, but that negotiated transboundary water agreements alone are not sufficient to eliminate non-water-related conflicts that may be camouflaged by TWAs. The economic and political burdens of unresolved transboundary water conflicts are significant. The creation of cooperation-based transboundary water agreements represents a convenient first step, but there are presently no guarantees of regarding the quality of cooperation. Sharing water remains a global problem.

Chapter 4: The Okavango River Basin

Introduction

This chapter focuses on the hydro-political dynamics of the Okavango River Basin. While these dynamics are comparable to those of the Orange River Basin, they play out in a decidedly different manner. By tracing the connections between the Okavango River Basin riparians, this chapter delineates the ways in which not dealing with the shadow of the past impacts the political reality of the present.

The Okavango River Basin is the recipient of both regional attention from its riparian and international attention, due entirely to the Okavango Delta and its designation as a Ramsar site. This area is a renowned world-class wildlife and wilderness tourism destination, a factor that this chapter examines in light of its impact on regional economies and international image. Internationalization of the Okavango Delta has resulted in multiple local, regional, and global stakeholders vying for a role in ‘protecting’ the Delta from ecological and environmental harms. These stakeholders include NGOs and other organizations interested in molding the discourse, scientific and otherwise, that emerges from this region. Unlike the Orange River, there is considerably less available hydrological and environmental scientific data on the Okavango River. Much less is known and documented about the basin’s hydrology, the cultural and ethnic diversity and socio-economic trends of the communities of the Okavango Delta area.²²⁶

²²⁶ The amount of ethnic diversity in the Botswana Delta region derives from a blend of baYei, baTswana, baSarwa, baMbukushu, baHerero, baGcanikhwe, and other tribes, some of which are marginalized and fundamentally disenfranchised in the country as a whole.

This chapter examines the impact this moldable discourse has on the politics of the region, as well as the basin's strategic role for its various riparians.

In both basins, Botswana and Namibia are two of the more economically developed states in sub-Saharan Africa and in the SADC region. Botswana occupies a favorable political position from which it could gain hydrological advantage and influence the behavior of its co-riparians in these two basins. Botswana contributes no flow to the Orange River basin, but is considered one of its riparians. Although at this point its actual influence is unknown, Botswana has the potential to use its position in the Orange River Basin to affect Namibia's hydro-politics either directly or indirectly. In exchange for concessions by Namibia in the Okavango River Basin, Botswana could align itself with Namibia in its continued negotiations with South Africa to redefine the Orange River boundary. This is only hypothetical; it is not clear that any action on the part of Botswana is likely to influence the Orange River boundary conflict between Namibia and South Africa. What this chapter examines is Botswana's growing power in the region, especially as it aligns itself with South Africa's attempts to maintain its role as regional hegemon.

In order to move towards these arguments, this chapter begins by describing the similarities between the two basins. In both, there is a heavy reliance on water resources, a historical-colonial legacy that conditions current political discourse among riparians, as well as how and where water-related infrastructure has been developed. Further, there is the historical and continuing geopolitical hydro-hegemony of South Africa that potentially eclipses all transboundary water negotiations. South Africa is not a riparian in the Okavango River Basin; however, it exerts considerable power and influence in the

region at-large. Its position as the regional hydro-hegemon, and as a hydro-hegemonic power broker, factors in all cooperation conversation. From a political perspective, this chapter examines South Africa's interest in the Okavango Basin, Delta preservation, suggesting that regional hydro-politics deal with more than just the conservation and preservation of the Okavango Delta.

Through examining the cooperative relationships operating in the Okavango River Basin, this chapter will demonstrate how South Africa is part of that relationship structure, and why its participation in this structure exemplifies post-colonial and post-apartheid community building.²²⁷ By critiquing South Africa's involvement in the politics of the region, this chapter will also complicate understandings of cooperation. After all, given the power of South Africa, its cooperation can act as exploitive by simultaneously coercing compliance from its co-riparians and by obscuring the exercise of power.²²⁸

Okavango River Basin Land-Uses

The Okavango River basin is home to approximately 1.4 million people, with 600,000 living in the Okavango Delta region. People have lived in the basin for hundreds of years, but the Delta region has always been a difficult place to live because of disease, warfare, poor soils, low rainfall, and slavery.²²⁹ Its principle land-types include small amounts of grassland in its very upper reaches and savanna and woodlands in Angola. Woodlands and swamps, both permanent and seasonal, are found in its lower reaches

²²⁷ Fukuyama's *Trust: The Social Virtues and the Creation of Prosperity* and Putnam, Leonardi, and Nanetti's *Making Democracy Work: Civic Traditions in Modern Italy* both provide further information on this topic.

²²⁸ Bourdieu, *Outline*.

²²⁹ Mendelsohn and El Obeid, *Okavango River*.

around the Okavango Delta. Small-scale agriculture, generally the crop farming of maize, manioc (cassava), millet and vegetables, constitute the dominant land use activities in Angola. Farm yields are generally higher in the upper catchment areas due to higher and more predictable rainfall. Still, the post-war impact has resulted in many poor subsistence farmers in Angola.

Further south, along the Namibian Okavango (Kavango) stretch of the river and upper reaches of the Okavango River in Botswana, livestock (cattle) farming is the dominant form of agricultural activity. Millet, maize, and sorghum are also grown. In the Okavango Basin, agriculture dominates freshwater withdrawals and use. In Namibia and Botswana (and in Zambia) the river basin region is also the location of several protected conservation areas and National game parks and reserves.

In the Okavango Delta areas of Botswana, tourism-related operations, such as hotels, lodges, or safari camps, dominate. Maun, Botswana is the primary urban center and departure point for Delta tourism and one of three in the basin. The other two urban centers are Menongue in Angola and the border town of Rundu in Namibia. Maun and Rundu both have airports. In Botswana, along the Namibian border, are many veterinary fences, at least one of which has been in place since the early 1960s. The first cordon fence - the Kuke fence - was constructed in 1958. These fences were installed initially to protect cattle against foot and mouth disease infections from buffalo. However, others have since been installed both within the countries and along borders in Namibia, Zambia, South Africa, and Zimbabwe to reduce disease transfer between domestic and non-domestic animals and restrict and channel movements of elephant and buffalo herds.

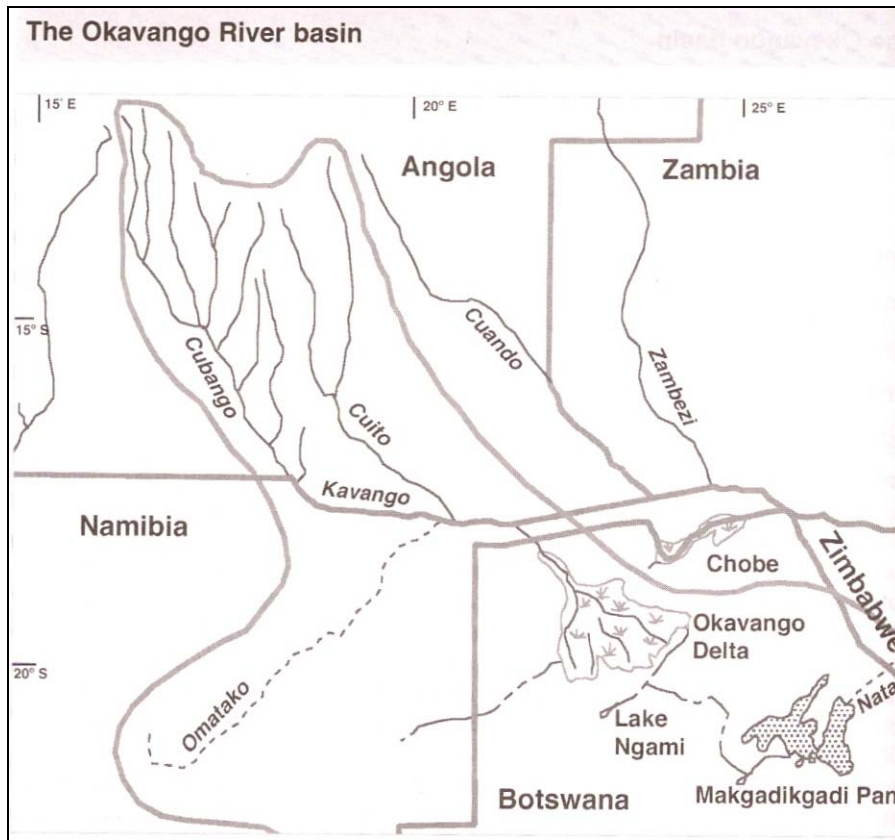
Okavango River Basin Hydro-politics

The Okavango Delta water quality is “exceptionally clean and clear because few minerals or clay particles are released from the Kalahari sands and because floodplain and marshes along the rivers filter out nutrients and mud particles”.²³⁰ Considered one of the most pristine freshwater ecosystems in southern Africa, the Okavango River is shared by three countries: Angola, Botswana, and Namibia. It represents an important perennial river source of water for Namibia, and is the single most important freshwater resource for the Okavango Delta in Botswana²³¹. The river is relatively remote from the major economic and administrative centers and capital cities of its riparian states. However, there are three small urbanized centers in the Okavango Basin region: Menongue, Angola; Rundu, Namibia; and Maun, Botswana.

²³⁰ Mendelsohn and El Obeid, *Okavango River*, 93.

²³¹ This has been described in Greer’s *Okavango: The Jewel of the Kalahari* (1987) and was confirmed during my interviews with Drs. Turton and Ashton in 2002 and 2003. Dr. Turton holds the Gibb-SERA Chair in Integrated Water Resource Management at the Council for Scientific and Industrial Research and is a political science scholar at the University of Pretoria, South Africa.

Figure 5. Map of the Okavango River Basin, its riparian states, and the Okavango Delta. The Okavango River Basin shared by primarily by Angola, Botswana, and Namibia. Reprinted with permission from Turton, Ashton, and Cloete, eds., *Transboundary rivers, sovereignty, and development: Hydropolitical Drivers in the Okavango River Basin*, 2003.



Including these urban centers as well as the populations living along the floodplains associated with the eastern Caprivi and the network of channels (oshanas) forming the Cuvelai drainage system, the river ultimately supports a population of a little more than 800,000.

When it comes to water demands in the basin, there are obvious competing interests and water-use patterns. For Angola and Namibia, water interests in the Okavango are focused on irrigation, water supply, and potential future hydroelectric

power schemes.²³² For Botswana, these interests center on sustaining uninterrupted water supply to the Okavango Delta ecosystem.

Several important considerations contribute to a discussion of the hydro-politics of the Okavango River basin. First, the riparian actors in the Okavango and Orange River basins share a complex geo-spatial and politically integrated history. They also share a similarly convoluted history with South Africa, the regional, economic, and hydrological hegemon.

Second, the competing claims on the hydrological resources in the basin create a need to identify additional sources of water in order to meet growing agricultural and urban demands, particularly for Namibia, located upstream to Botswana. There are also the proposed dams in Angola, upstream to both Namibia and Botswana, and the downstream claims by Botswana. Botswana needs to supply water for the Orapa mines, local production, and other uses, such as fisheries, agriculture and livestock, and delta-based tourism and wildlife utilization.

The growing shortage of water constrains future development and, potentially, contributes to conflict. In both basins, Namibia is the most arid of all sub-Saharan SADC states. Thus, one factor of significant concern for Namibia is finding an ample water supply that offers both long-term sustainability and will also meet the growing deficits in the central areas of Namibia.²³³ While Namibia and Botswana are downstream riparians that contribute almost no stream flow, both riparians are better positioned than Angola

²³² Mendelsohn and el Obeid, *Okavango River*.

²³³ The Ministry of Agriculture, Water and Rural Development discuss this in “National Water Policy White Paper.” Heyns also raises this issue in “Existing and Planned Development Projects on International Rivers within the SADC Region.”

institutionally, technologically, and politically to negotiate and implement their water interests relative to the Okavango River.

A third consideration is the peace dividend in Angola. Currently there is little known about Angola's water development plans for the upper catchment of the Okavango River. However, sustained peace in Angola creates opportunity for both Namibia and Botswana to engage in new hydro-political negotiations; these negotiations would be necessary for Angola to undertake much needed development. Angola, the upstream water-rich basin headwater riparian, has only recently ended its civil war of over two decades, which made both data collection and economic development in the upper reaches of the Okavango basin virtually impossible. The remnants of war, which include the presence of land mines, large numbers of displaced Angolans, and a government unable to comprehensively address these problems in the immediate future means that up-stream development and research may be slow to occur.

The fourth consideration is the Okavango Delta. Upstream diversion by either Namibia or Angola is perceived as a real threat to the future ecological health and of the Okavango Delta. The Okavango River supplies water to one of the world's unique inland deltas, a Ramsar²³⁴ site called the Okavango Delta in northern Botswana, known as the

²³⁴ Botswana, which deposited its instrument of accession on 9 December 1996 (the entry came into force April 9, 1997), designated the Okavango Delta system as its first wetland of international importance. The Ramsar site is approximately 68,640 square kilometers (6,864,000 hectares), which places it ahead of Canada's Queen Maud Gulf (6,278,200 ha) as the world's largest Ramsar site. The designated area includes the Okavango River, the entire Okavango Delta, Lake Ngami, and parts of the Kwando and Linyanti river systems that fall along the western boundary of the Chobe National Park. The Okavango Delta System is hydrologically unique. It is the largest inland delta in sub-Saharan Africa after the inner delta of the Niger. Since it lies in a semi-arid area, 97% of the annual inflow of between 7,000 and 15,000 million cubic meters is lost to evapo-transpiration and seepage. The Delta discharges only 3% of its water. UNESCO, Ramsar Archives, 1997.

“Jewel of the Kalahari”²³⁵. The delta has been and continues to be the subject of international attention and status, as is the river itself. Because the river is an endoreic system that empties into the inland delta, not the sea, development options for both Namibia and Botswana are limited, thus presenting challenges to each riparians’ sovereignty and their prospective water development plans. Hasler²³⁶ argues that there are four issues that threaten the Delta. He cites global climate change, proposed diversion of water by upstream actors, proposed river damming by upstream actors, and competing activities within the Delta, particularly conflicts between water for tourism and water for water-dependent uses (agriculture, cattle production, etc.).

The Okavango Delta is an important local and international ecological wetland system that nurtures a wide variety of riverine fauna and flora, and wildlife, and is a major economic resource for Botswana, which makes every effort to keep the Delta a prime tourist destination. With or without upstream water diversion of the Okavango River, the delta remains vulnerable. Botswana considers the value of uninterrupted flow to the Okavango Delta essential to its tourist economy. Namibia, on the other hand, believes diversion of river flow will aid the nation in meeting its growing water demand without significantly jeopardize the Delta’s ecological health. These divergent interests are a source of quiet conflict between Namibia and Botswana.

The designated Ramsar area includes the Okavango River, the entire Okavango Delta, Lake Ngami, and parts of the Kwando and Linyanti river systems, both of which fall along the western boundary of the Chobe National Park. The Ramsar Information

²³⁵ Indeed, this poetic phrase appears as the title to Greer’s *Okavango: The Jewel of the Kalahari*. This region has also been described as one of the ‘Last Edens’ in “Okavango Delta: Old Africa's Last Refuge” by Douglas B. Lee in *National Geographic Magazine* (Vol 178, No.6. December 1990). Botswana was the magazine’s lead and cover article.

²³⁶ Hasler, “Political Ecologies of Scale.”

Sheet filed for the site notes that the main threats to the area come from possible water extraction from the Okavango and Kwando rivers and their tributaries by fringe states, Angola, Botswana, Namibia, and Zambia.²³⁷ Interestingly, the Ramsar designation²³⁸ came about the same time as Namibia's pipeline plans. Designation as a Ramsar site could be considered one mechanism that Botswana has used to protect the Delta and its source of water—the Okavango River.

Botswana and Namibia have ratified the Ramsar Convention. However, Angola has not. This is problematic, as Angola contributes 94% of the river inflows to the Delta. Heyns²³⁹ suggests the Ramsar declaration was done without any consultation with the two upstream states. As a result, Botswana's ratification of the convention can be seen as linking the hydraulic interests of Botswana to a framework of global environmental interests.²⁴⁰ Alternatively, Botswana's effort to have the Okavango Delta designated a protected site could be read as an effort to protect a natural resource of extraordinary ecological significance and a site of considerable economic value to the national economy *vis-à-vis* monies generated through tourism and related local employment.

The Okavango River originates has competing upstream extra-border demands and intra-national border competing water demands. The Okavango, known as the Kavango River in Namibia, is Namibia's only perennial river and passes only briefly

²³⁷ UNESCO's letter informing the Bureau of the accession of Botswana, posted 24 February 1997. From the Ramsar Archives.

²³⁸ The Ramsar Convention on Wetlands of International Importance is an international agreement that, upon site designation, requires Botswana to conduct and implement a comprehensive management plan for the designated site. The Ramsar Convention on Wetlands is an intergovernmental global treaty that came into force in 1975. Its mission is "conservation and wise use of all wetlands through local, regional and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world" (Ramsar COP8, 2002). For additional information, see <http://www.ramsar.org>.

²³⁹ Heyns, Interview.

²⁴⁰ Swatuk, "Kant and Should."

through the northeastern corner of the country. It remains ripe for an inter-basin transfer (IBT). IBTs constitute a leading role in Namibia's water schemes.²⁴¹ A Kavango River IBT would provide much needed water to Windhoek, the capital of Namibia, as it is distant from any primary surface water source and is experiencing significant urbanization, economic development, and related increases in water demand.

River Physiography and History

The Okavango River is the third largest in southern Africa, and because it flows into the Okavango Delta—considered one of the largest freshwater ecosystem oases in the world (as of year 2000)—it is often described as the river that never finds the sea. An important characteristic of the Okavango River is the clarity and purity of its water, which is attributed to the draining of the Kalahari sands, and (for the time being, at least) the few sources of pollution or contamination in the basin. “The Delta is really a gigantic sink into which the river pours about 9.4 cubic kilometers of water each year”.²⁴² According to Ashton and Neal,²⁴³ the Okavango River Basin is a sub-basin of the Makgadikgadi Basin, which is part of the Nata River. However, for the purposes of this dissertation, that distinction has not been a consideration in the discussion of the transboundary hydro-politics of the Okavango River basin.

Originating in the Angolan hills, the headwaters of the Okavango River flow from two main tributaries, the Cubango River (which is how the Okavango is known in Angola) and Cuito River in the Angolan Highlands. The Cubango flows southward for

²⁴¹ The role of IBTs is also discussed in Ashton's “The Search for an Equitable Basis for Water Sharing,” Heyns' “The Interbasin Transfer of Water Between SADC Countries: A Developmental Challenge for the Future,” and in Turton's “The Political Aspects of Institutional Development in the Water Sector.”

²⁴² Mendelsohn and el Obeid, *Okavango River*, 26.

²⁴³ Ashton and Neal, “An Overview of Key Strategic Issues in the Okavango Basin.”

about 600 square kilometers from its Angolan highlands until it reaches the Namibian border.²⁴⁴ The Cuito River joins the Okavango River near Katere. This junction is characterized by a large floodplain, which includes a section of permanent swamp. Flow from the Cuito doubles the volume of water in the Okavango River. The Cuito has a more even flow rate and a later flood peak than the Cubango. At times of low flow, the Cuito contributes a large proportion of water to the Okavango River system. The southern part of the catchment is a fossil drainage, where these tributaries, known as omiramba, contribute little or no flow. The largest, the 650 km long Omuramba Omatako, is blocked by sand dunes and dense vegetation. At Dikuyu Island near Mukwe the river turns south and for the next 55 kilometers both banks are in Namibia.

The river, as stated previously, is shared by three countries. Angola, its origin, is the most water-rich and the source of its headwaters. Mid-stream, it flows through Namibia, the most arid and water-stressed of the three. Botswana, downstream and also water-stressed, contains the river's delta (Figure 5).²⁴⁵ All water flowing into Botswana comes originally from Angola. The Okavango River is the *only* perennial river flowing across its territory into the sovereign state of Botswana.

The borders of the Okavango riparians (Angola, Botswana, and Namibia) originated at the Berlin Conference in 1884 and subsequent treaties signed between Portugal, Britain and Germany, during the 1880s and 1890s. Pre-colonial groups in the Okavango River basin included the Khoisan peoples who were joined around the eight century by Bantu-speaking peoples from West Africa. In the Angola territory, these two

²⁴⁴ Heyns, "A Hydropolitical History of South Africa's International River Basins."

²⁴⁵ Although not considered an important riparian or included in this discussion, it should be noted that Zimbabwe contains about 3.2% of the basin, as well.

peoples intermarried, together forming groups, villages, and eventually kingdoms. In the southern part of Angola, and the northern part of Namibian territory, were the Ovimbundu. They occupied lands adjacent to the Ovambo peoples' kingdom, the largest ethnic group in what is now Namibia. Other groups included the Herero peoples in the central arid plateau, the Nama to the south, and the San and Damara, hunter-gatherer groups in central and southern Namibia. In the contemporary Caprivi region were the Kavango, Matsubia, and Mafu groups. These different groups form Namibia's multi-ethnic society of today.

Botswana is the least ethnically diverse. Eighty-five percent of Botswana's pre- and post-colonial population is Tswana. The Tswana chiefdoms were politically and socially organized around eight chiefdoms where chiefs dominated decision making and used a system, *kgotla*, that continues on into the present day (Kgotla is an assembly of all men in the community convened to consult and discuss important community matters, and functions as a check on the authority and power of the chief. Such an arrangement is not without constraints on chiefly power. The dictates of traditional law, determined by a group of elders, also acts as a constraint on power.). Outside of the Okavango Delta and Caprivi regions, water availability has always been a problem for the peoples of Botswana. The arid conditions of Botswana created an economy and wealth based more on cattle and less on agriculture. In contrast to the cattle-based economy of Botswana, the peoples of Namibia generally practiced mixed farming based on where they lived

The Portuguese, Dutch, and later the German and English all had early contact with pre-colonial southwestern and southern African peoples. The type of contact and relationship with both the pre-colonial groups and territories would be driven, in part, by

the diversity of interests, their knowledge of mineral resources, the European-national economy, and the global political economy.

The Okavango River system became known to the outside world (European explorers-colonists) in the mid 1800s. In 1849, English explorer and missionary David Livingstone visited Lake Ngami; Charles John Anderson, believed to be the first European to see the Okavango River, reached the River near Nkurenkuru in 1859. In 1877, Portuguese explorer and surveyor Alexandre Serpa Pinto explored the upper reaches of the river system. Although occupied by the local peoples for hundreds of years, the basin generally and Delta region particularly have been difficult places to colonize, settle, or live, due mostly to the tsetse fly and its related disease, warfare, slavery, poor soils and low rainfall.²⁴⁶ Indeed, for years, the presence of the tsetse fly may have offered some protection to the Delta.

Between 1884 and 1890s colonial rule was established and the basin riparians divided by the Portuguese, Germans, and British. Of the three Okavango riparians, Botswana was first to gain its independence from Britain in 1966. Prior to its independence, Botswana was not colonized by any European state, but functioned as a protectorate of Britain. Angola achieved its independence in 1975. However, it would not be until 1990 that Namibia would become an independent state.

The Okavango River has been the subject of water development for many years. In 1969, when Namibian territory was under the South West Africa Administration of the Union of South Africa, the Department of Water Affairs and Forestry (DWAF) appointed

²⁴⁶ Mendelsohn and el Obeid, *Okavango River*.

consultants²⁴⁷ to conduct a preliminary study on the potential technical and economic feasibility of constructing a hydro power plant on the Okavango River. Additionally, DWAF had certain parts of the Okavango River, where the river first becomes the international boundary, explored at the same time. However, the potential site was not considered viable as the flow in that section of the river is variable. Moreover, using that location would have involved international negotiations with Portugal (eventually, these negotiations would need to involve Angola).

The river's active catchment area is located entirely in Angola. The Cubango/Okavango provides about 55% of all water flowing into the Delta. Another 45% derives from the Cuito and its tributaries, which cover an area of about 708,600 square kilometers. The Okavango River flows for a distance of 4115 km along the northeastern border between Angola and Namibia before turning southward and into Botswana. The basin population of approximately 220,000 inhabitants is divided principally between Namibia and Botswana, with Namibians numbering a little over 100,000. Major infrastructure in the basin includes the Eastern National Water Carrier (ENWC) in Namibia, which currently extends from Windhoek to Grootfontein, and the Mopipi Dam in Botswana. Throughout Namibia there is other water infrastructure impacting the river, including dams, boreholes, and pipelines.

The combined catchment area of the two main tributaries results in a MAR (Mean Annual Runoff) of approximately 9,585 M³m per annum, which is ten times more than all the ephemeral rivers of Namibia together, and which equals the combined runoff of the

²⁴⁷ From the "Technical Report on the Pre-feasibility Study for the Popa Falls Hydro Power Project by WTC (Water Transfer Consultants)," available at <http://www.nampower.com.na/2005/docs/Section%201%20Introduction%20-%20Final%20Report.pdf>.

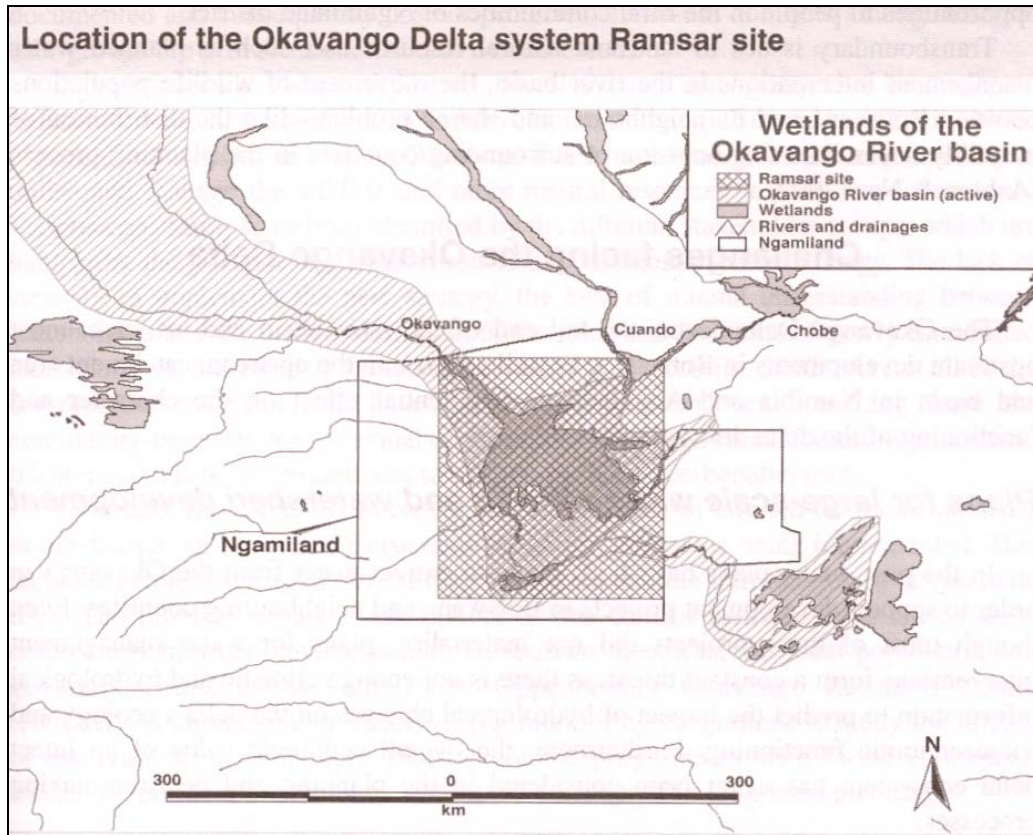
Orange River and the Cunene River. Once the Okavango River flows into Botswana, it transmutes from a range of permanent river channels into semi-permanent drainage channels, lagoons, islands, and floodplains that connect and disconnect in a complex dynamic forming the Okavango Delta.²⁴⁸

Located in its entirety in Botswana, the Okavango Delta and its future contribute significantly to the importance of understanding the transboundary cooperation and conflict of riparians in this river basin and their respective water needs and demands. For many different groups, the river system as a whole has high value. One group consists of international interests, tourists, and others who treasure unique, healthy ecosystems in wild places with beautiful scenery and massive concentrations of wildlife. It has been suggested by Botswana minister Jacob Nkate, WSSD, September 2002, that for many people, Botswana *is* the Okavango Delta, and it would be exceedingly difficult to imagine Botswana without it.²⁴⁹

²⁴⁸ The Okavango Delta (Figure 6) is a 15,600 square kilometer *high-quality habitat* for thousands of mammals, birds, fish, and other animals. The Okavango Delta is the last surviving remnant of the great Lake Makgadikgadi whose waters and associated swamps once covered much of the Middle Kalahari. It also is closely associated with the Kwando, Linyanti, and Chobe swamps and river systems to the northeast. Inhabiting the waters of the Okavango Delta are an estimated 35 million fish of perhaps as many as 80 species. Additionally, the Delta offers an oasis of habitat for plant and animal life. The abundant wildlife in the Delta supports a vital and fundamental segment of the Botswana economy—the eco-tourism industry. The Delta is a prime tourist destination. The tourism industry in Botswana is fourth largest behind diamond, copper, and nickel mining and exports, in that order. The Okavango's waters still cut the characteristic fan shape of the Delta.

²⁴⁹ Jansen and Madzwamuse, “Transboundary Rivers, Sovereignty, and Development.”

Figure 6. The Okavango Delta—an inland delta—system Ramsar site in Botswana. Reprinted with permission from original in Turton, Ashton, and Cloete, eds. , *Transboundary rivers, sovereignty, and development: Hydropolitical Drivers in the Okavango River Basin*, 2003.



Discussed in significantly more detail in the next section, it is important to acknowledge upstream impacts on the Okavango River physiography and hydrology. The vast majority of the river's active catchment area is located in Angola. Forty-five percent comes from the Cuito with another 45 to 55 percent comes from the Cubango River. A significant feature of the Okavango River, and the basin itself, is its lack of pollution and contamination, a bittersweet gift from Angola's turbulent past.

Angola's decades-long civil war resulted in the protection of the hydrological integrity of the Okavango River basin as it prevented upstream development in the

Cuando-Cubango Angolan region of the river. However, now that the war has ended, Angola is likely to begin its water development plans and strategies for development in the Cuando-Cubango Angolan region of the Okavango River Basin in an effort to catch up with other basin states. As such, upstream river resources may come under pressure.²⁵⁰ When upstream development occurs, it has the potential to cause pollution, reduced river flow, and reduced water quality, all actions that may result in negative downstream effects. A more detailed discussion of Angola's politics and hydrological implications of peace for the downstream riparians and Okavango River Basin follow in the next section.

Namibia and the Okavango River Basin

Namibia needs to increase its water supply and provide water to its growing urban population, especially in the central areas where its capital is located. Since most of Namibia is covered by desert and grassland, water and its respective benefits are tantamount to the country's future. It receives about half of its electricity supplies from South Africa's power utility, ESKOM—a dependency the government of Namibia would very much like to reduce. Projects like the Epupa Dam along the Cunene River could provide new sources of energy supply.²⁵¹ However, the country has only partial access to five perennial rivers, none easily accessible and all in remote border areas—the Okavango (Kavango in Namibia) along the northeastern border and the Orange in the south, and the Cunene (Kunene in Angola), Zambezi, and Chobe (Figure 5).

²⁵⁰ Mbaiwa, "Causes and Possible Solutions to Potential Water Resource Conflicts in the Okavango River Basin."

²⁵¹ Heyns, Interview.

A large hydro-electric dam on the Cunene would solve many critical energy and water supply problems for Namibia, and would also benefit the drought-prone Namibe and Cunene provinces in Angola.²⁵² Angola and Namibia have had a relatively long engagement of negotiations about the construction and proposed location of a hydro-electric project (Epupa Dam) on the Cunene River, where it forms the border of Namibia and Angola.

Angola and Namibia began negotiations in 1991; however, a serious division arose over the exact location of the dam. Namibia preferred a site four kilometers downstream from the Epupa Falls, while Angola made a case in favor of a site in the Baynes Hills, 40 kilometers further downstream. Angola is keen to build the project at the Baynes site because its smaller capacity would make it more dependent on flow regulation at the Gové dam further upstream. This means that a portion of the funding for a dam at Baynes could be used for the rehabilitation of the Gové dam, damaged during Angola's recently ended civil war.

The Namibians perceive the Kavango River Valley as a possible bread-basket²⁵³ which is consistent with the Government of Namibia's Vision 2030 comprehensive framework to make Namibia food self-sufficient, and increase socio-economic development.²⁵⁴ Namibia's arid climate and limited rain make it unlikely that it will be able to sustain reliable rain dependent crop production. The agriculture sector contributes significantly to Namibian exports, but it consists primarily of cattle and meat products.

²⁵² Lang, Steven, "Southern Africa: Plans to Dam the Cunene River Are Shelved Again."

²⁵³ Mendelsohn and el Obeid, *Okavango River*.

²⁵⁴ For more information on this project, see http://www.grnnet.gov.na/News/Archive/2005/february/week2/session_rpt.htm.

Since 1990 such exports accounted for more than 70% of Namibia's agricultural exports.²⁵⁵

In an effort to increase economic development, enhance water supply to Windhoek, *and* following several consecutive seasons of drought, in 1996 the Namibian government unilaterally proposed to extract and divert water from the Okavango River in Namibia, upstream from the Delta. Namibia, as an independent sovereign state, made plans to construct a 250-kilometer-long pipeline, the Eastern National Water Carrier (ENWC) or Rundo-Grootfontein Pipeline, (note the broken line in Figure 7) to transfer 20-million m³ of water in subsequent phases. This section of the pipeline would target directly withdrawals from River that portion of the Okavango within the Namibian territorial boundaries.

When the second phase of this IBT was proposed, Namibia believed that the IBT, a project to be financed in part by China, would result in increasing water flow to 120-million m³. Not only was Namibia experiencing severe drought-generated water stress, it also believed the pipeline was a preventive measure against future droughts. According to 1997, wire services from South African Press Association (SAPA), the Chinese government (PRC) had pledged \$283,000 (US dollars) toward the pipeline project. Japan had also expressed interest in funding the project and Namibian President Sam Nujoma had made appeals to the German government for project loans as well. Owens Corning, a U.S. corporation, offered to supply \$50 million in pipes, and suggested that the pipeline would accelerate the rate of Namibian industrialization.

²⁵⁵ Melber, *Namibia: A Decade of Independence*.

Interestingly, the idea of the Eastern National Water Carrier (ENCW) was initiated prior to Namibia's independence, when the territory was known as South West Africa (SWA) and all water management was governed by the Union of South Africa Department of Water Affairs and Forestry. Such IBTs were common place for the Union of South Africa, where a preference for large scale water engineering infrastructure development had been repeatedly used as an instrument of economic development and water provision to places where water was scarce and unreliable.

Completion of the ENCW follows a colonial norm and a shared past, in which large hydro-schemes dependent upon large scale infrastructure remain the favored solution, as opposed to indigenous and rural water development alternatives. Currently the ENWC links two dams—the VonBach in Windhoek and Omatako in Hereroland. The state felt the need to take action to remediate both the immediate water concerns and those in the future as a preventive measure. Although Botswana had its own water development plans in the 1990s, Namibia—then territory under the Union of South Africa—had been considering the construction of a pipeline since 1973.²⁵⁶ In fact, a portion of the ENWC pipeline already existed (Figure 7). Namibia presented its pipeline plans to Botswana only upon their completion, which contributed to the view that Okavango River Basin Commission (OKACOM) was a mere “paper tiger”.²⁵⁷ It is important to note that when established in 1994, it was Namibia that initiated OKACOM,

²⁵⁶ Heyns, Interview.

²⁵⁷ Ramberg, “A Pipeline from the Okavango River,” 129.

believing that its participation would lead to, “Agreed access to a reasonable and equitable share in the waters of the Okavango.”²⁵⁸

Figure 7. Proposed Rundo-Grootfontein Pipeline (represented by the broken line)—part of the ENWC IBT to divert water from the Okavango River Basin where it crosses into Namibia, and the current pipeline scheme. *Map by Eureka Cartography, Berkeley, CA and is reproduced with permission (August 2008).*



Botswana, along with many international NGOs and institutions, argues that diversion of the river would render irreparable harm to the Delta's ecological system and the economy of Botswana. According to a member of the Botswanan delegation to OKACOM, Steve Monna, who I interviewed while doing fieldwork in the region, after diamonds, delta-generated tourism is the second largest contributor to the national

²⁵⁸ Electronic communication with Mr. Piet Heyns, 25 April 2003. I had extensive interviews with Mr. Heyns in 2002, and again in 2004 in Namibia, as well as electronic communications. He was an excellent source of many state documents and reference materials, and allowed me to participate, as an observer, at OKACOM and other meetings.

economy of Botswana. For Angola and Namibia, the river represents potential hydropower and irrigation for reconstruction of areas that were destroyed during the Angolan Civil War and the Namibian War of Liberation, respectively, and for new and future economic development. According to Heyns, the Namibian delegate to OKACOM, who I also interviewed while doing fieldwork, the Kavango River's potential is in irrigation, and in its potential to provide increased water to Windhoek via the Eastern National Water Carrier.²⁵⁹ A proponent of cooperation, Heyns does not dispute the ecological value, importance, or uniqueness of the Okavango Delta. He merely points out that the benefits of developing this research are not insignificant.

Angola and the Okavango River

The Republic of Angola, headwater and upper-most riparian of the Okavango River, is rich in mineral and oil resources: diamonds in the northeast, offshore oil reserves in the Cabinda region, and rich agricultural land in the central highlands (areas farmed as coffee plantations during colonialism). Angola is bordered on the south by Namibia, east by Zambia, and north and east by the Democratic Republic of the Congo along the Southern Atlantic Coast. With a little over 1,600 km of Atlantic coastline and about twice the size of Texas, Angola is the seventh largest African state and one of the least populated. After an armed struggle against Portugal that began in 1961, Angola became independent in 1975.

²⁵⁹ Ibid.

Portugal's departure from Angola (and in Mozambique and Guinea Bissau) would have regional, national and continental implications. In Angola, the departing Portuguese failed to hand over control to any succeeding government or nationally recognized political entity. For South Africa, it would generate two political concerns: a black-ruled, independent, and Marxist-Leninist state on its geo-political borders, as well military actions involving Cuba, the Soviet Union, and the United States, strategic moves reflective of Cold War politics and states.²⁶⁰ During the 1970s and 1980s, Cuban President Fidel Castro sent Cuban soldiers to fight on behalf of Angola and Namibia against South Africa. He also sent doctors and civilians to assist in several other African countries' liberation struggles.

South Africa's military action against Angola would also create alliances of several independent African states (Nigeria, Tanzania, Ghana, and Sudan) against South Africa. Additionally, it would lead to Namibia's insurgent independence group SWAPO (South West Africa's People's Organization)²⁶¹ to align itself with the Popular Movement for the Liberation of Angola (MPLA). As a result, the MPLA, the USSR, Algeria and Egypt would all provide military training support to SWAPO in its fight for an independent Namibia. SWAPO, ironically, evolved from an organization founded in Cape Town, South Africa in 1957, named Owamboland People's Organization (OPO). Following a 1959 protest against the forced removal of blacks from the city of Windhoek into the black township Katutura, the name changed to both disguise the organization's

²⁶⁰ U.S. Department of State, *The CIA World Factbook*.

²⁶¹ SWAPO's origins further illustrate the intimate geopolitical relationship between the colonial history of the region and political relationships and may help to explain some aspects of the nature of cooperation between independent African states. There are several tribal groups in Namibia. Two important ones associated with the fight for independence are the Owambos and Hereros. Like many states in Africa, tribal differences contribute to political tensions, schisms, and violent conflict.

tribal support base and to attract members from other ethnic groups in Namibia. For South Africa, fighting the MPLA, fighting communism, and fighting to retain control over Namibia would turn out to be the singular military and political activity until 1988, when South Africa agreed to withdraw troops from Angola, provided Cuba did the same.

Portugal's formal, reluctant, and rapid departure would take with it much of the country's governing expertise and businesses, triggering institutional failures and a scramble for power to among three political groups: the Movimento Popular da Libertação de Angola (MPLA), the National Union for the Total Independence of Angola (UNITA), and the National Front for the Liberation of Angola (FNLA). United in their demand for independence from Portugal, but differing in ideology, these three groups would fight the Portuguese, each other, and South Africa along Angola's southern border.

Once the internal conflicts for dominance were over, Angola reflected the global conflict of the Cold War politics of that same time period. Each group, the FNLA, UNITA, and MPLA would have support from either the Soviet Union and its allies, or the United States and its allies. For example, the FNLA was supported by Zaire, which was also supported by U.S. assistance, and, ironically, by China. UNITA, the least ideological, would seek and receive South African and, as a consequence, U.S. support. The MPLA, with its strong Marxist philosophy, would receive financial backing and military support from the Soviet Union and troops from Cuba.

With support from the Soviet Union²⁶² and its ally, Cuba, the MPLA won control over the newly independent Angola. This would launch a MPLA-UNITA civil war within Angola that would itself last twenty-seven years, and result in millions killed, maimed, displaced, and subject to famine and poverty. The war enabled the theft of public money and exacerbated corruption. Further, control of diamonds and oil resources became an integral part of the conflict. The UNITA stronghold included the Cuando-Cubango province (the majority of the Okavango River basin catchment area) and the central highlands. Dominance of the catchment region by UNITA would spill over into the Namibian-Angolan border region. The result would be large numbers of Angolans moving into the northern part of Namibia, many of whom are still there. Large numbers of left-over land mines add another complication to province resettlement, development, and catchment area management.

Angola has a history characterized by exploitation, which included an active commercial slave trade²⁶³ and violence on a scale that has no comparable measure in either of its basin riparians, Botswana and Namibia. Tony Hodges writes that Angola is in the process of a “. . . quadruple transition: from war to peace and reconciliation; from humanitarian emergency to rehabilitation, recovery and development; from an

²⁶² The Cold War between the United States and Soviet Union was being played out on the various continents as each sought allies and supported causes in an effort to either win loyalty or keep various countries from aligning with either one side or the other, in this ideological struggle between communism and democracy. Many African independence or freedom fighters struggling for independence sought and received Soviet support for their cause. The United States with its ally, South Africa, backed UNITA as a counter to the Marxist-oriented MPLA and to counter Soviet influence in Africa.

²⁶³ According to Crawford Young, *The African Colonial State in Comparative Perspective* (1994), the scale of the slave-trading economy in Angola involved the direct participation of the agencies of the civil government. Also, Angola was a dumping ground for convicts crowding the Portuguese prisons, which contributed significantly to the “special character” of colonialism in Angola. Only the Portuguese used Africa, specifically Angola, as a penal settlement.

authoritarian, one-party system of governance to pluralist democracy; and from a command economy to one based on the laws of the market.”²⁶⁴

In all of Angola, landmines, desolation, systemic neglect, and human displacement have stymied development. The destruction of most infrastructures and the presence of landmines have limited the physical movement of people and will continue to suppress development initiatives in the catchment area. It is estimated that less than 3% of Angolans live in the Angolan Okavango basin area. In recent decades, no censuses have been conducted in Angola; however, estimates of total population range from 12.5 to 15 million.²⁶⁵ Further, the long civil war has made accurate data difficult to obtain and verify, if it is even available. Different sources estimate between two and four million internally displaced people (IDPs) throughout Angola,²⁶⁶ with approximately 160,000 in Menongue and 40,000 in Cuito Cuanavale—the basin catchment areas.

The war’s official end was April 2002. The end of the civil war in Angola raises many questions of interest to its basin riparians, particularly regarding cooperation around the Okavango River basin. It was the Angolan civil war which prevented development of the upper basin area Cuando-Cubango (Kuando-Kubango) and thereby resulted in no upstream activity that would either reduce stream flow or increase the pollution loads resulting from agricultural production.

²⁶⁴Hodges, *Angola: Anatomy of an Oil State*, 199.

²⁶⁵ More data on the region’s population can be found in the *CIA World Factbook* (worldfacts.us), in Mendelsohn and el Obeid’s *Okavango River*; UNEP database of population; or from the Office for Co-ordination of Humanitarian Affairs (OCHA).

²⁶⁶ In “The Peace Dividend in Angola,” Porto and Clover posit that there were more than a million and a half casualties, four million internally displaced people (a third of the population), and close to one-half million refugees in neighboring countries.

Angola is not likely to encounter water scarcity in the immediate future, due in part to the fact that its population centers and highest water demands are located along the coast, far away from the upper reaches of the basin. In terms of downstream water security there are several factors²⁶⁷ of interest:

1. Development in the Kuando-Kubango region of the basin most likely will occur slowly due mostly to the presence of landmines, lack of infrastructure, i.e. road and rail infrastructure, and the resettlement of IDPs and other refugees.
2. Angola's post-war peace-building and humanitarian challenges and recovery efforts are complicated by its successful oil operations and revenues. These were virtually unaffected by the war but do not benefit the society as a whole. Since the formal Angolan economy has shrunk, much of the resources and leadership needed for redevelopment are not available where they are needed.
3. The Civil war had "catastrophic consequences for agricultural production and created a humanitarian crisis that was compounded by the periodic pause and resumption of armed hostilities between 1991 and 1998.
4. Unplanned developments in Angola along the de-mined transport routes and corridors in the Cubango and Cuito sub-basin regions.
5. Patterns of unsustainable development and related water uses including: overgrazing, the diversion of water to service urban expansion, irrigated agricultural production, resettlement, and general redevelopment.

Another factor not yet analyzed in the literature is the growing development investment by China. With unrestricted 'no strings attached' (that is, requiring no analysis of economic, environmental or interstate impacts) financial investment from China, the development of natural resources infrastructure, like extracting oil and minerals or

²⁶⁷ Porto and Clover, "The Peace Dividend in Angola."

constructing the roads and dams necessary for continued hydro-power, construction in select African states has been accelerating.²⁶⁸

At the conclusion of the Angolan civil war, and even as late as 2004-2005, very little was known about the water resources or water use in the upper catchment area of the Okavango River basin. The civil war prevented the collection of baseline data. According to a 2000 Global Environment Facility (GEF) report, the Okavango River Basin was considered one of the least human impacted basins on the African continent, but socio-economic and population pressures from its riparians posed the utmost threat to its character. As stated previously, Angola is the dominant hydrological contributor to the Okavango River Basin; if it is to improve significantly its involvement in regional water cooperation dialogues it will require increased technical, managerial, and governing capacity. With such improvements, Angola stands to become the basin hydro-hegemon and by tapping its rich water resource create anxiety for its downstream riparians.

Presently Angola is not in a position to undertake upstream efforts to control the flow of water or use its geographical position to exclude downstream riparians. Without Angola being able to physically and technologically seize control over the Cubango and

²⁶⁸ “China is building major new railroad lines in Nigeria and Angola, large dams in Sudan, airports in several countries and new roads, it seems, almost everywhere. One of the largest road builders, China Road and Bridge Construction, has picked up where the solidarity brigades of an earlier generation left off. The company, which is owned by the Chinese government, has 29 projects in Africa, many financed by the World Bank or other lenders, and it maintains offices in 22 African countries.” From “New Power in Africa: Entrepreneurs From China Flourish in Africa,” by Howard W. French and Lydia, published in the *New York Times*, Polgreen on August 18, 2007.

Cuito Rivers, hydro-political and hydro-geologic extremes in asymmetrical physical interdependence²⁶⁹ will not take place just yet. However, Botswana and Namibia's demands for water from a single resource and political and future developmental change in Angola, potentially increase the long-range potential for exacerbating basin conflict, especially in light of disproportionate downstream dependence on a flow of water an upstream riparian may cut off. Again, this is dependent upon the capability of an upstream riparian to convert its resource and geographical advantage into an actual capacity to inflict downstream flow reduction. While this may not be the case with Angola and its downstream riparian states, it is the case with Namibia and Botswana.

Angola is a member of OKACOM. It is also a SADC member and signatory to the Protocol. It has the highest and most reliable rainfall, lowest evaporation rates, and more rivers and streams than any of the other Okavango River riparians. It is not, however, a signatory to the Ramsar Convention. As a result it is not under the same obligations that Namibia and Botswana are under to promote the conservation of the Delta's wetlands and their resources. However, as a member to the Permanent Okavango River Basin Commission (OKACOM), Angola is part of an institution that is developing sustainable ecosystem management plans for the entire basin. All the same, Angola is an unknown entity, and as the upstream riparian eventually may take the lion's share of the water. History has demonstrated that upstream states, regions, and hydro-hegemony frequently consume or exercise control over the larger share of water.

Now that Angola's civil war has ended, resettlement and development is beginning to occur. Angola is anxious to move toward the level of development of its

²⁶⁹ Keohane and Nye, *Power and Interdependence*.

basin co-riparians. Because of this, its river resources may come under pressure.²⁷⁰ When upstream development occurs, it has the potential to cause pollution, reduced river flow, and reduced water quality, all of which are actions that may result in negative downstream effects.

There are, however, more important post-war challenges facing Angola. The country has begun measures promoting national reconciliation, demilitarization, the disarmament of combatants, and the strengthening of political participation. Further, the country is beginning to address the growing need for policy reform as well institutional development for public administration, education, and social services. All these require a nuanced allocation of the various resources necessary to address urban and rural poverty, high mortality, unemployment, and economic diversification. According to the UNDP's Human Development Index, Angola is ranked 161 out of 173 countries, with an estimated one million or more children having no access to educational or health facilities. It is believed that children under 15 comprise over half of Angola's population, with 20 to 25 percent under the age of five.

Politics plays an important role in securing and implementing water agreements. Cooperation, connecting the principles (1) *equitable and reasonable utilization*²⁷¹ and (2) *no significant harm*, necessitates that all riparian states are able to not only negotiate, but are able to introduce and take advantage of joint opportunities for water development and management. However, a riparian actor's ability to do so may be constrained by capacity imbalances, an inability to analyze and formulate knowledgeable policy positions, or past

²⁷⁰ Mbaiwa, "Causes and Possible Solutions to Potential Water Resource Conflicts in the Okavango River Basin."

²⁷¹ Based on the Helsinki Rules.

circumstances leaving them subject to the decisions of a hydro-hegemon. Though a major water contributor not only to the Okavango River basin, but also the Zambezi and Cunene as well, and a signatory to several bilateral and multilateral transboundary water agreements, Angola lacks the institutional, technical, and managerial capacity necessary to effectively engage in water resource management decisions. More importantly, Angola does not have the necessary technology, knowledge base, expertise, or institutional capacity to take advantage of its geographical position in the Okavango River basin.

Though the upstream riparian, presently Angola has no capacity to restrict or exclude its downstream riparians from unlimited access to the river's water resources. At the time of this research there was no readily available data for upstream water withdrawals or development in Angola. The extensive use of land mines²⁷² in the Cuando-Cubango province during the civil war remain an immense challenge as clearing the mines has suffered from inadequate resources to take on such a challenge. As a result, developing land-use intelligence and reducing the data gaps by collecting ecological and hydrological information from the field continues to be a difficult and dangerous task.

Equally important to planned water development is the level of unknown, unregulated and unmanaged Okavango catchment activity, which also may have an impact on downstream water quality and quantity. In spite of the peace dividend, Angola is experiencing limited development capacity, significant scientific gaps, technical

²⁷² In "Angola," published in Chabal's *A History of Postcolonial Lusophone Africa*, David Birmingham estimates that as many as 9 million mines were put down in Angola.

uncertainties, a gap in governmental professional and technical knowledge, and conflicting post-war national interests, all of which are likely to impede its upstream water development, at least temporarily.

Botswana—the Okavango River Basin and the Delta

Like its other Okavango River basin riparians, Botswana shares a complex economic and political history with South Africa and, like Angola, provided support and refuge to anti-apartheid activists during the 1970s and 1980s. During that time, and even now, Botswana seemed acutely aware of its economic dependence and interdependence with South Africa. Because of geography and history, Botswana has had and continues to have strong and multilayered economic and political connections with South Africa. Before discussing Botswana's hydro-politics, it is useful to offer some perspective on its past history, including its economic and political relationship with South Africa, which is very different than that of Namibia and Angola's with South Africa.

Botswana, previously Bechuanaland, and Lesotho were British protectorates, as opposed to colonies.²⁷³ The Bechuanaland (Botswana) Protectorate encompassed the

²⁷³ Interestingly, in Botswana colonial rule has been described as so mild that the term 'indirect rule' might be more appropriate according to John Holm in "Botswana: A Paternalistic Democracy." Unlike South Africa or Namibia, fewer Europeans settled in the Bechuanaland Protectorate. As a result, less pressure was placed on the colonial government to rule and protect settlers. Unlike other colonial settlements where the potential for agriculture (i.e. coffee, cacao, or cotton plantations) or resource extraction (gold, or other minerals) was dominant, cattle provided the pre-colonial, and, to a great extent, the post-colonial source of wealth. As a protectorate Botswana's Tswana chiefs dominated traditional decision-making, exercised authority, and used their influence to protect the territory's incorporation. Indeed, in the 1880's when the Tswana chiefs appealed to the British for protection, they were also mindful of Germans wanting to link the territory that would become known as the Caprivi region and the upper reaches of the Okavango Delta's source waters to German territory in Tanganyika, the African territory that was once part of the German East African colony. Named after Lake Tanganyika, this territory is now part of the Tanzania mainland. Tanganyika became part of British colonial Africa after World War I under the 1919 Treaty of Versailles.

northern part of the territory, and eventually came under the protection of the British Crown. For Bechuanaland, part of the rationale of becoming a British protectorate was to prevent advances into its territory by Boers from the Transvaal or German expansion from South West Africa. Ironically, it was governed by powers exercised by the high commissioner in South Africa, an incorporation Botswana had historically opposed.²⁷⁴ Botswana strongly opposed this governance, but that opposition did not, and has not, resulted in Botswana escaping the socio-political and economic influence of South Africa (then Union of South Africa) from the late eighteenth century on. It was not until South Africa became a republic and left the Commonwealth in 1961 that it abandoned its efforts to incorporate the Bechuanaland protectorate.²⁷⁵ During that same period, at least through the 1950s, Southern Rhodesia (now Zimbabwe) was making similar efforts to incorporate Bechuanaland into its territory.²⁷⁶

Their economic relationship is complex as well. Since 1910, Botswana has been economically connected to South Africa (SA), wherein SA collected levies from customs, sales, excise duties, and subsequently participated in revenue sharing as a result of the South African Customs Union (SACU). The formula for revenue sharing and the decision-making authority over duties is held exclusively by the government of South Africa, which was not renegotiated until 2001. In addition to Botswana, the SACU arrangement included Namibia, Lesotho, and Swaziland.²⁷⁷ The benefits of belonging to a single

²⁷⁵ du Toit, *State Building and Democracy in Southern Africa*.

²⁷⁶ Ibid.

²⁷⁷ The SACU links trade of Botswana, Namibia, Swaziland, Lesotho and South Africa. The South African economy dominates SACU. According to the 2007 U.S. Department of State Country Profile on Botswana, a new SACU structure has now been formally ratified and a SACU Secretariat has been established in Windhoek, Namibia. Following South Africa's accession to the World Trade Organization (WTO), of which

customs union, and sharing road, rail, and communications networks accrued mostly to South Africa, chiefly because South Africa was the most developed and had the necessary physical and economic infrastructure.

Hydrologically, Botswana is not considered a water-scarce state.²⁷⁸ According to Falkenmark and Lundvist²⁷⁹ and Fruhling²⁸⁰, Botswana uses less than one percent of the available water, and is much better off than many of its neighboring states and co-riparians. Nonetheless, according to the SADC regional water strategy, Botswana is recognized as one of the more water-scarce states in southern Africa. It is dependent upon groundwater, ephemeral and perennial rivers, IBTs, and rain. With the exception of the Okavango and Chobe Rivers in the northeastern region of the country, all other surface rivers within Botswana are ephemeral.

Like its co-riparian Namibia, in Botswana there are enormous distances between water supply locations and water demand population centers. To some extent, the location of population centers may be related to the presence of the Kalahari Desert and disease risk associated with the tsetse fly in the Delta. So while surface water supply from the Delta was more abundant, the more favorable climate and arable farming soil conditions are concentrated in the southern and eastern part of the country.

Botswana is a co-riparian in six river basins:

Botswana also is a member), many of the SACU duties are declining, making American products more competitive in Botswana. Currently the SACU countries and the U.S. are negotiating a Trade, Investment and Development Cooperation Agreement, scheduled to be signed in 2008. Botswana signed an Economic Partnership Agreement with the European Union in December 2007, and, as a member of SACU, it signed a preferential trade agreement in 2004 with Mercosur. SACU also has plans to negotiate free trade agreements with China, India, Kenya, and Nigeria.

²⁷⁸ Ohlsson, *Hydropolitics*.

²⁷⁹ Falkenmark and Lundvist, "Looming Water Crisis."

²⁸⁰ Fruhling, "A Liquid More Valuable Than Gold."

1. Molopo/Nossop River to the south, which flows into the Orange River and forms the southern border between Botswana and South Africa.
2. Limpopo River to the eastern border, between Botswana and South Africa.
3. Makgadikgadi pans and drainage basin²⁸¹ to the west of the Limpopo.
4. Kwando/Linyanti/Chobe Rivers in the north, where the Kwando, originating in Angola, enters Botswana after crossing through the Caprivi Strip in Namibia and then spreads into the Linyanti swamp system in Botswana.
5. Okavango River basin, shared with Angola and Namibia in the northwest, which terminates in the Okavango Delta and its outlets in Botswana.
6. Orange River Basin to the southern border between Botswana and South Africa where Botswana contributes *no* flow, but potentially may put into effect its significant political leverage and influence.

Highly uneven and limited, renewable groundwater resources represent another source of water for Botswana. Often saline where they exist, groundwater resources supply livestock, rural villages, and the mining sectors. Even if not considered water-scarce,²⁸² Botswana faces serious water challenges, which potentially could limit future welfare and economic growth.

Botswana's national water master plan, the single policy tool of the 1990s, states as its major objectives:

²⁸¹ Makgadikgadi pans constitute a region of sandy alkaline clay depressions (pans) in northeastern Botswana. On the eastern side of the pans, the Mosope, Moseitse and Nata Rivers all drain into the Makgadikgadi pans. On the western side the Boteti River is considered part of the Okavango Delta wetland system. Of the four rivers, the Nata is the largest, draining mostly from Zimbabwe, into the Makgadikgadi. The pans form a broad inland basin situated roughly halfway between Maun and Nata in northern Botswana.

²⁸² Ohlsson, *Hydropolitics*.

- a. Estimate national water demands from 1990 to 2021;
- b. Determine availability and development potential of the country's water resources to meet those demands; and
- c. Determine the most favorable water resources development programs and policies and identify their associated financial, institutional, legal resource requirements, as well as environmental and social impacts.

All of these objectives suggest that Botswana's national water plan is for the nation to develop economically within the country's water means. The National Water Plan Study argues that the uncertainty of future water supplies in Botswana, competing uses, and high opportunity costs of water makes irrigation prohibitively expensive. As a result, large scale irrigation becomes a less likely alternative and too expensive for food self-sufficiency. One result is that "Botswana accepts that total food self-sufficiency is neither achievable nor sustainable."²⁸³

There are over 50 different types of dams in Botswana. Some are earthen, and others are major infrastructure works. The latter include many that have been completed, are under construction, or are in the planning stages. The Ntimbale dam was completed in 2006, and the Thune and Lower Shashe are scheduled to be completed by March 2009.²⁸⁴ Namibia has ten large dams. Currently no significant amounts of water are being abstracted from the Okavango or Chobe Rivers. In the early 1980s, Botswana had plans to develop a series of pipelines in the Okavango Delta wetlands to supply existing settlements, increase agriculture irrigation prospects and improve fishing facilities.²⁸⁵

However, by its declaration as a Ramsar Site, Botswana's ability to undertake Delta

²⁸³From the 1992 Botswana National Water Plan Study prepared by SMEC/KPB/SGAB (available: <http://www.atlas.gov.bw/>) and the FAO report from the Natural Resources Management and Environment Department Report (available: <http://www.fao.org/docrep/V8260B/V8260B0g.htm>).

²⁸⁴ SADC Review, "Botswana Water and Energy."

²⁸⁵ Scudder and others, "The IUCN Review of the Southern Okavango Integrated Water Development Project."

water development schemes is constrained by the same rules it expects Namibia to follow by not developing its hydrological schemes along the Kavango stretch of the river.

What is important here is that nearly ten years later (1990s) and in response to international NGOs, e.g. the International Union for Conservation of Nature (IUCN) and local riparian communities objecting to Delta water development the government of Botswana agreed to support an independent Environmental Impact Assessment (EIS) of the SOIWDP. IUCN conducted the assessment and concluded better alternatives existed. In 1992, the government determined to forego its 1980s SOIWDP Okavango Delta water development plans.²⁸⁶ Botswana's response suggests that the government is willing to soften its political posture (that is, give up part of its sovereignty) in order to further in the case of its water development plans especially if it strengthens its ability to subject its co-riparian, Namibia, to similar independent third-party oversight.

About this same time, an extended drought in Namibia had reduced the national water supply and increased pressure to move forward on its Eastern National Water Carrier (ENWC) pipeline construction project to transfer water from the Okavango River. Namibia's national Environmental Impact Assessment on the project concluded it would have no major impacts on the Okavango River Basin-Delta.²⁸⁷ In response, Botswana insisted that an independent international EIS be conducted to investigate the environmental impact of the water diversion, via the pipeline, on the downstream delta in

²⁸⁶ Ibid.

²⁸⁷ Hellmuth, "Water Resources of Namibia," in Fuller and Prommer, *Population-Development-Environment in Namibia Background Readings*.

Botswana. Namibia subsequently retreated from its decision to go forward with the pipeline construction. Why? It rained.²⁸⁸

It is difficult to determine whether the decision was driven by external factors or natural ones. The rain ended the drought and temporarily reduced Namibia's water need, thus lowering the urgency behind constructing the pipeline. However, Namibia still needs water. Accessing the Okavango River remains an option, even if it must arrange for IBTs further upstream through bilateral negotiations with Angola.

The need to divert the Okavango to augment the water supplies in the central area of Namibia had been identified long before Namibia's independence. The questions of access, however, were not taken-up with the co-riparians previously because Namibia was not a sovereign state.²⁸⁹ Although the Helsinki Rules convention, to which Namibia and Botswana are signatories, suggests a different approach, Turton²⁹⁰ contends that Namibia has the right to use the water of the Okavango to develop and administrate important economic and social activities, and will exercise its right if no other water resource is available.

²⁸⁸ This pithy summary came up during my interviews with both Heyns and Turton. It also came up in my interviews with Shirley Bethune and Steve Rothert. At the time of my interview in 2000, Dr. Bethune was working for the Ministry of Environment and Tourism on the National Water Resources Management Review Team. She is an aquatic ecologist, engaged in water and wetland-related consultancy work and a part-time lecturer at the Polytechnic of Namibia. She is the founder and co-chair of the Wetland Working Group of Namibia and the founding member of the Okavango Basin Steering Committee, which she also co-ordinated.

I interviewed Steve Rothert after the publication of his 1999 paper, "Meeting Namibia's Water Needs While Sparing the Okavango." He provided me with an early version copy. Steve Rothert is the Director of the California Field Office Prior for American Rivers. He worked with the organization as a private consultant on hydropower and dam-related issues. Steve has also worked in Botswana, where he represented the International Rivers Network on dam and other river issues throughout southern Africa.

²⁸⁹ From information presented at the Green Cross International Okavango Pilot Project (OPP) Workshop, during the session entitled "Cooperation in the Okavango River Basin: the OKACOM Experience", in March 2003. The OPP Workshop was part of a Green Cross Water for Peace initiative. The Okavango was one of six basins included in the overall study effort.

²⁹⁰ Turton, "Hydropolitics and Security Complex Theory."

In this region, the SADC Protocol on Shared Watercourses is the relevant benchmark, not Helsinki. However, the revised 2000 SADC Protocol on Shared Watercourses includes similar language and provisions. The Helsinki Rules would argue that no basin state may deny another state reasonable use of common water resources for the purpose of reserving water for itself but that signatory states need to engage equitable sharing, guarantee access to water resources, and consider the potential for downstream (implied) harm. A more detailed discussion of the SADC protocol for transboundary water resources as a regional framework for transboundary watercourses is in the Agreements, Accords, River Basin Organizations, and International Financial Institutions (IFIs) section.

In terms of the politics of transboundary water cooperation and agreements, what this case study illustrates is not only the fragility of such agreements and river basin organizations (RBOS), but also how important it is that their respective strategic framework, mandates, and implementation are to insulate a particular transboundary water resource or influence riparian behaviors where water is increasingly scarce. There are many variables able to undermine cooperation, including an extended period of drought; escalation of regional, domestic, or past political issues among riparians, i.e. Caprivi, Sedudu-Kasikili river island or others; increased numbers of refugees or other types of population shift; the continued tension between Botswana and Namibia; and unilateral action by an upstream riparian (Angola or Angola and Namibia). While Angola lacks such an option at present, Namibia, on the other hand, does not.

Namibia *has* the capacity, technical knowledge, and geographical advantage over Botswana necessary to divert water and inflict major downstream losses. With such a

potential upstream threat, Botswana acted to have the Okavango designated as a Ramsar site, leveraging contacts like the U.S. State Department and World Conservation Union outside of the water-sharing basin to compensate for an axiomatic lack of geographical leverage.²⁹¹ However, according to a 2000 Green Cross International Report this interest in conservation is just Botswana's publicly stated position. All along it was "quietly developing a series of pipelines along the Panhandle." These pipeline projects are intended to ". . . supply existing settlements, and will also act as a strong migration pull factor in the future."²⁹²

Aside from the Ramsar designation to protect the Okavango Delta, Botswana has been and continues to be a vocal opponent to Namibian water development schemes that result in Okavango River stream flow reduction like Namibia's Eastern National Water Carrier (ENCW). The ENCW planning and implementation began in the early 1970s, which when fully completed would supply water from the Okavango River to the city of Windhoek, a distance of approximately 720km. When initially planned it was to have an eastern link to Gobabis and western links to the Namibian coastal communities of Swakopmund, Walvis Bay and Rössing Mine. The ENCW pipeline from Windhoek to Grootfontein is complete. It is the outstanding component linking Grootfontein pipeline to the Okavango River that is the more controversial aspect of the IBT, as it is believed that such and IBT would change the water flow received by the Okavango Delta.

²⁹¹ Both Keohane and Nye's *Power and Interdependence* and LeMarquand's *International Rivers* examine the idea of leverage more thoroughly.

²⁹² From the 2000 Green Cross International Report prepared by Anthony Turton (AWIRU-Africa Water Issues Research Unit of the University of Pretoria). The Report was a project proposal to provide an objective assessment of the needs and positions of the Okavango Riparian states, in part to prepare for the next serious drought in the basin, and to develop a set of conflict prevention measures.

Several groups oppose any change in the status quo of the Okavango Delta and the water it receives to sustain the ecosystem. Many of the opponents to IBTs by Namibia are local inhabitants who live and depend on the river system's resources such as fish, water, building materials, and jobs in the related tourist industry comprise a second group. Okavango Delta tourism provides a high economic value to Botswana.

Another opposition group to IBTs includes international and regional interests that reflect the internationalization of the ecological importance of the Okavango Delta as a unique ecosystem. For example, a 2002 GEF report maintained that "the *threats* to the Okavango River Basin are real and imminent as evidenced by the unilateral initiative by Namibia to abstract water from the system under *emergency* drought conditions . . . it is expected that the opportunity to protect this relatively pristine system will not appear again".²⁹³ Nonetheless, upstream from Botswana, Namibia asserts its diversion of a portion of the Okavango River would contribute significantly to providing much needed water and would not appreciably adversely impact the Delta's hydro-ecology. According to the 1997 *Feasibility study on the Okavango River to Grootfontein Link of the Eastern National Water Carrier (ENWC)*, hydrological modeling concluded that the proposed abstraction from the Okavango represented a reduction in flow, but that it would not "dry out the Okavango Delta but will affect the outflows from the Okavango Delta into the Thamalakane River, reducing it by 1.44Mm³/a."²⁹⁴ The environmental findings of the study states further that: "The Okavango River does not inundate its flood plains during low flow months and the effects of any abstraction would be confined to the main

²⁹³ GEF, "Environmental and Sustainable Management of the Okavango River Basin," 29.

²⁹⁴ Department of Water Affairs and Forestry (DWAf), *Feasibility Study on the Okavango River to Grootfontein Link of the Eastern National Water Carrier*, 48-49.

channel.” It goes on to say that: “Such a decrease would be hardly discernable”²⁹⁵.

Admittedly, this report’s conclusions are dated, but without scientific or factual environmental information to the contrary, this report’s findings remain unchallenged. OKACOM members have agreed to another study and environmental analysis.

The proposed completion of the ENCW pipeline illustrates how attempts by one state to increase and secure water resources is met with suspicion by another. The construction of a dam at Popa Falls is another controversial water scheme by a co-riparian that has drawn Botswana’s ire, as well as that of international NGOs, including International Rivers (IRN).

The proposed and planned construction of the Popa Falls hydropower station represents another factor that complicates the hydrology of the Okavango Delta, but also represents how an upstream riparian—Namibia—is actively considering, once again, its future hydro-security. Again, some of the louder protests against Namibia’s proposed actions came from environmental NGOs and Botswana’s tourism industry wanting to secure the Okavango Delta. For many Botswanan citizens, and other interested actors, protecting the Okavango Delta is the center stage of identity formation constructing an “imagined security community”.²⁹⁶

South Africa and the Okavango River Basin

South Africa is not a riparian in the Okavango River Basin. However, its position as regional political power and influential actor and hydro-hegemon should not be

²⁹⁵ Ibid., 49.

²⁹⁶ Conca and Dabelko, *Environmental Peacemaking*.

overlooked and cannot be ignored. Neither should its past political relations with each of the Okavango basin states.

South Africa has had a unique role within the southern African community and among current SADC states. Its political and military role in the region and with Okavango basin riparians has been volatile, violent, and, most recently, virtuous. Post-1994 South Africa works toward being a “good” neighbor toward its neighboring states. It represents approximately one-third of the SADC population, but uses almost eighty percent of all exploited water resources, of which only ten percent are actually available in South Africa.²⁹⁷

Though geographically on the sidelines, South Africa has had an important role in improving the knowledge base and management dialogue on the Okavango River basin. Numerous interviews with regional water elites, researchers, scholars, and public officials suggests that efforts on the part of South Africa may altruistically represent an effort on the part of this group to be a good and helpful co-riparian, as well as a keen awareness of asymmetry, hegemony, and in the case of shared transboundary river basins, riparian position and history.

South Africa, like many of the international interests in the Okavango River basin, has focused its attention on the Delta. Conservation and protection of the Delta as a local, regional, and international ecosystem has gained significance as a common good. However, it is not clear that this is South Africa’s principal interest or goal with respect to the Okavango River Basin. Because of the Okavango Delta, the Okavango River basin is an internationalized basin subject to international financial donor and non-

²⁹⁷ Van Wyk, “The International Politics of dams with specific reference to Lesotho.”

governmental organization interest. The Okavango basin riparians, in some respects, lack a functional hydro-hegemonic state. Thus basin states have reached a normative agreement with the local hegemon—South Africa. According to Warner,²⁹⁸ hegemony brings greater benefits than discomforts and non-hegemons may be so repressed that there is no hope of successful counter-hegemonic action. In this case, such an action would be counterproductive, especially for Botswana *and* for South Africa. Remember, all flights transfer in Johannesburg. South Africa is likely to receive some residual economic benefit from the Delta's continued survival and economy.

South Africa is and intends to remain both the regional hegemon and as well as the hydro-hegemon in the SADC region at large. Part of retaining that position will depend in part on being able to continue its influence in the region, exercise influence in a basin in which it is not a riparian, and continue as an African continental power. South Africa is playing the long game; this nation is trying to exercise and secure its regional hegemony, of which its hydro-hegemony is a major component.

Many of the water elite in South Africa have contributed to major research and analysis on the Okavango Delta, and are likely to continue to play a major role.²⁹⁹ Additionally, South African scholars, academic and policy professionals, and its Department of Water Affairs and Forestry (DWAF) have been a principal source of hydrological data, regional and state background and archival information, and at the forefront of research efforts especially in regard to the Okavango Delta. As the keeper of hydrological data, much of it undisputed, and as the regional actor with the capacity and

²⁹⁸ Warner, "Hydro-hegemony as a Layered Cake."

²⁹⁹ A variety of sources confirm this, including Ashton's "The Search for an Equitable Basis for Water Sharing," Heyns' "Achievements of the Orange-Senqu River Commission in Integrated Transboundary Water Resource Management," Green Cross International, IRN and U.S. State Department-funded research *vis-à-vis* IUCN.

talents necessary in the manufacture, negotiation and authoritative certification of knowledge, capture of new and additional data, transfer technological skill and knowledge, and harness broad international support, potentially South Africa can wield considerable influence among SADC states *and* within basins where it is not a riparian.

As has been noted in the discussion on OKACOM, all major airline flights go through Johannesburg OR Tambo International Airport, formally known as the Johannesburg International Airport in South Africa. The airport is the transport hub of southern Africa and absolutely the busiest airport on the continent, testament to the long standing power that is South Africa, most of which is a carry over from its regional dominance prior to the independence of all the basin riparians.

Another reason to consider the importance of South Africa in the context of the Okavango River Basin is its river basin boundary territorial dispute with Namibia. The territorial dispute between Namibia and Botswana was decided in Botswana's favor. As a result, South Africa may consider Botswana sympathetic to its position regarding the Orange River boundary dispute with Namibia. As discussed in the Orange River Basin case study, when deciding on the final river boundary between South Africa and Namibia, South Africa has not compromised on its national territory. The contentious border conflict between South Africa and Namibia shares many similarities with the Kasikili-Sedudu territorial dispute between Namibia and Botswana. As a water-neutral hegemonic presence in the Okavango River Basin, however, South Africa may use its economic and political relationship with Botswana to gain its support in maintaining South Africa's position.

South Africa has strong economic and historical ties to both Namibia and Botswana, and is a key exporter of goods to both nations. South Africa is the single largest supplier of energy to Namibia, and, during apartheid, provided water to Botswana at times of drought.³⁰⁰ It has bilateral transboundary water accords with both Namibia and Botswana and is a signatory to several international conventions to which they also are parties. To further transboundary water development, management, and cooperation in river basins that South Africa shares, Botswana and the Republic of South Africa are members of the Botswana / RSA Joint Permanent Technical Water Committee

Agreements, Accords, River Basin Organizations (RBOs) and International Financial Institutions (IFIs)

There are different levels at which agreements are negotiated, established and operate in their respective efforts to navigate various aspects of transboundary water cooperation. Additionally, there are different actors, stakeholders, and institutions engaged in dialogue at the various basin, regional, and international levels. There are multiple regulatory arrangements for transboundary river basin management and cooperation, including international agreements and conventions, regional and basin specific agreements, and in some cases, although not discussed here, there is national policy and legislation. This section briefly outlines several of the more significant international, regional, and basin-specific institutions and, includes brief descriptions of the agreements, organizations, or river basin organizations (RBOs) and their particular

³⁰⁰ Turton, Interview.

role, connection, and interest in outcomes associated with the Okavango River basin and its respective riparians.

A parallel discussion is also included in the Orange River Basin chapter, with a notable difference: there is no internationalization of the Orange River. The Okavango Delta has become part of an international resource dialogue. Because of the internationalism associated with its protection, management, and sustainability, there are several agreements (accords) and international interests, which have captured and compete for the attention of Okavango River riparians or to which the basin riparians are signatories.

There are water management issues associated with water resources in the Okavango River basin, including the complexity of the Delta and River basin ecosystems, their vulnerability to anthropogenic impacts, regional and international pressure to comply with or abide by agreements, protocols, etc., and harmonization of state water development plans with shared goals and objectives. In addition to the water management issues, there are political and technological issues, and significant resource-specific information and data gaps that need filling.

In an effort to manage the Okavango River's resources against escalating demands for water to support development needs in each basin state, there are several regional agreements and protocols that serve an important role toward local transboundary water cooperation. All three riparian states are signatories to several international and regional conventions and treaties, briefly enumerated and summarized below.

I begin at the basin level with OKACOM, which is followed by a table of Okavango NGO stakeholders, and an explanation of the role of international financial institutions and international conventions to which each is a signatory. This section concludes with a discussion of the SADC Protocol on Shared Water Course Systems and how it matters for Okavango hydro-politics.

The Okavango River Basin Water Commission (OKACOM)

In 1994, the Governments of Botswana, Namibia, and Angola committed to a multilateral Permanent Water Commission on the Okavango River Basin (OKACOM) to investigate how the legitimate water needs of each basin riparian could be accommodated in a sustainable manner. The existing institutional arrangement (OKACOM) is believed to provide the “most logical framework for initiating discussions and negotiations between the basin states”.³⁰¹ Additionally, OKACOM aspires to be the formal transboundary multi-state RBO responsible managing the resources of the Okavango river system through the development of an integrated water management strategy for the entire basin. Since 1995, several research efforts were launched to provide estimates of projected water needs for each of the basin states. One immediate and early stumbling block that interfered with collecting the data for each of the OKACOM states was the civil war in Angola and the immediate post conflict problem of access to the upper Okavango catchment area due to landmines, and weak dysfunctional—essentially nonfunctioning—post-war government institutions. As a result, early estimates of growth in consumptive water demand for Angola may have been under estimated.

³⁰¹ Ashton, Interview.

As stated previously, prior to OKACOM, Botswana had considered a major water development project for the southern margin of the Delta but cancelled its plans on the basis of an independent environmental analysis in 1992 by IUCN and, because of its Ramsar designation. Namibian abstraction options from the Okavango River not only predated the establishment of OKACOM, but also its independence, and were included in its 1995 Central Areas Water Master Plan. OKACOM predates the 1995 and 2001 Revised SADC Protocol on Shared Water Course Systems. At that time, funding for the representatives derived principally from national ministers.

Each country sends a delegation to OKACOM meetings, which typically are rotated among the various riparian states. Recurrent costs for Commission meetings and delegation attendance varies by country. The 1994³⁰² OKACOM agreement establishes a Permanent Okavango River Basin Water Commission, whose key objectives are:

- To act as technical advisor to the Contracting Parties on matters relating to the conservation, development and utilization of water resources of common interest.
- Advise on measures to determining the long term safe yield of the water available from all potential water resources in the River;
- Create the criteria to be taken into account in the conservation, equitable allocation and sustainable utilization of water resources;
- Prevent the pollution of the water resources;
- Determine the measures to be taken to alleviate short term difficulties resulting from water shortages;
- Investigate the development of any water resources, including the construction, operation and maintenance of waterworks.

³⁰² Although OKACOM is mandated to convene all riparians, and to some extent all relevant institutions, it is not legally binding on member states and has been constrained by member government's inadequate professional resources. A central challenge for OKACOM (indeed, for any river basin accord or treaty) is to determine integrated management of shared watercourses to the mutual benefit of all riparians and the ecosystem, without the individual states losing their sovereign control over those same resources.

Further provisions concern the following: composition of the Commission (art. 2); meetings of the Commission (art. 3); powers of the Commission (art. 4); and its financial arrangements (art. 6).

Presently, OKACOM has no effective mechanism for collecting or managing data or basin planning. Where there is data, it is incomplete. There is no comprehensive set of uncontested basin data.³⁰³ Although the cabinets of the riparian governments have vested authority in OKACOM to advise on policy, technical and investment matters related to the Okavango River Basin, the precise policies, enabling mechanisms, investment vehicles, and resource commitments have not yet been firmly established.

It would seem that the unwritten strategy of OKACOM is to secure the consensus of all riparians on the less controversial issues by postponing the key but difficult issues concerning the Okavango River to either a future date, succeeding generations, or until another crisis forces the issue. Indeed, it has taken OKACOM until 2005 to establish an interim permanent secretariat (OKASEC), which will not be fully operational until October 2008. Given those circumstances, even with international donor funding (\$2.2 Million from SIDA) and support, it is questionable if OKACOM will be able to ever function in such a way that it will be able to consider objectively the water development plans of its riparians; develop mutually acceptable solutions for sharing water resources and basin management; design a system where information and data are mutually accepted, harmonized, valid, and communal; or establish a protocol for riparian states to

³⁰³ Turton's "A Hydropolitical History of South Africa's River Basins," Ashton's "The Search for an Equitable Basis for Water Sharing", Heyns' "The Interbasin Transfer of Water Between SADC Countries," and publications from Green Cross International all demonstrate this.

voluntarily give adequate advance notice of changes in the status quo in their respective water development plans.

To have long-term success as *the* coordinating agency for transboundary cooperation on the Okavango River and principal mechanism for collaboration across the linked sectors and socio-economic systems of each riparian's national ministries, OKACOM must be accepted and seen as an entity able to implement natural resource policy as it relates to the Okavango River basin. Other linked sectoral interests and national ministries, i.e. agricultural, financial, and mining interests may find OKACOM either too limiting in its goals and mandates to serve the broader goals of each riparian's national development, thus posing a risk to the long-term success of OKACOM. Finally, it is not likely that OKACOM will become an effective operational river basin commission without substantial and continual resource investments from international financial institutions. Even with that investment and continued regional and local interest, I would expect water resource management and development in the Okavango River basin to proceed according to individual national development plans.

OKACOM has not managed to address one of the fundamental obstacles in The Pyramid (Figure 2): *sovereignty*. Each state retains the sovereign right to exploit their own resources according to their own environmental and developmental policies. Several Namibian government official with whom I spoke reminded me of this when I spoke with them. Another base level obstacle (Figure 2, The Pyramid) where OKACOM is both weak and limited is *hydro-hegemony*. There is no hydro-hegemon in the Okavango River basin—yet. This research strongly suggests that although South Africa is not an Okavango Basin riparian, it retains its position as the hydro-hegemon. Other obstacles

include technical uncertainties, problems of reciprocity, and, as this case clearly demonstrates conflicting national and international interests. Along with the political setbacks, these obstacles create challenges for OKACOM’s ability to move its basin states toward quality cooperation.

Select Non-Governmental Organizations (NGOs) concerned for the Okavango River Basin and Delta

There are several local and international NGOs and stakeholder groups that have been actively involved in water conservation efforts and specifically in water research, data development, advocacy, and management matters of the Okavango River basin and Delta. The Okavango Liaison Group (OLG) formed in 1996, and is a regional coalition of non-governmental organizations, communities, and individuals working for the sustainable development of the Okavango River and Delta. This coalition claims as its members: the Kalahari Conservation Society (KCS), Conservation International (CI), Somarelang Tikologo, Hotel and Tourism Association of Botswana (HATAB), Desert Research Foundation of Namibia (DRFN), Earthlife Namibia, and International Rivers Network (IRN). Not all of these NGOs are discussed below; however, additional detail on several of the more prominent groups active in basin and Delta conservation follow (Table 5).

Table 5. Select NGOs Concerned with Water Resources in Okavango River Basin Countries

NGO-Mission	Okavango River Basin Related Efforts
Desert Research Foundation of Namibia (DRFN) <i>DRFN is to empower decision-makers at all levels through, capacity building, facilitation, knowledge generation and</i>	DRFN is an important research and data resource organization operating in Namibia. It is an active NGO institution committed to research, education, consultancy and the democratization of knowledge

<p><i>sharing in order to promote sustainable development</i></p>	<p>in the interest of sustainability.</p>
<p>World Conservation Union's (IUCN)</p> <p><i>IUCN is a global environmental network that supports scientific research; manages field projects; and brings governments, non-government organizations, United Nations agencies, companies and local communities together to develop and implement policy, laws and best practices.</i></p>	<p>IUCN Botswana Office, established in 1984)) mission is "influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable".</p>
<p>Green Cross International (GCI) Geneva-based international organization</p> <p><i>GCI's mission is: providing assistance to communities affected by the environmental consequences of wars and conflicts, preventing and resolving conflict that results from environmental degradation, and promoting legal, ethical, and behavioral norms. GCI emphasizes its unbiased environmental analysis, expertise, education, research, scientific studies and social and medical support.</i></p>	<p>In 2002, IUCN and the Botswana government signed the Okavango Delta Management Plan.</p> <p>Considers its "Water for Peace" initiative, which includes the Okavango River Basin, a principle research imitative.</p>
<p>International Rivers Network (IRN)</p> <p><i>Through research, education and advocacy, IRN works to halt destructive river infrastructure projects, address the legacies of existing projects, improve development policies and practices, and promote water and energy solutions for a just and sustainable world. The primary focus of IRN's work is in the global South. Source: http://www.irn.org/basics/ard/index.php?id=/basics/about.html</i></p>	<p>Protect rivers and defend the rights of communities that depend on them. IRN opposes destructive dams and the development model they advance, and encourages better ways of meeting people's needs for water, energy and protection from damaging floods.</p> <p>The Okavango Delta is an IRN campaign, where it has conducted research efforts and advocacy for Okavango River water conservation and sustainability (IRN has also argued alternatives to the Namibia's pipeline project and proposed Epupa Dam construction on the Cunene River.)</p>

It should be noted that the Okavango Wildlife Society (OWLS), which had as its mission the conservation of the Okavango Delta and associated communities in Botswana, disbanded March 31, 2003, after 39 years of operation. The Kalahari, Conservation Society, its sister NGO, absorbed its remaining members and subsumed its mission.

In Botswana and Namibia, a select group of NGOs are not only active, but receive considerable IFI donor support. For example, the DRFN helped to facilitate creation of

the country's first basin management committee in the Kuiseb River Basin. Additionally, they have been aggressively conducting outreach, education, and public awareness about water resources, as well as, for land and energy. In my interview with Dr. Seely³⁰⁴, she discussed the need to educate and expand opportunities for stakeholder involvement well beyond the bureaucrats, privileged and water elite.

In Botswana, IUCN-Botswana is an active NGO and major actor in environmental matters. In addition to its other activities, IUCN-Botswana is engaged directly with conservation and sustainability of the Okavango Delta. As an international organization, it along with several others have engaged in significant efforts to continue advocacy and the process of strategic environmental planning. One of IUCN's stated roles is to raise awareness about multilateral environmental agreements and international conventions.

IUCN works in close cooperation with other NGOs to build larger and more effective NGO environmental networks. The Okavango Liaison Group (OLG) is such a network. It is an informal network of NGOs focused on the sustainability of the Okavango River Basin.

The long-term survival of the Okavango Delta may depend on the aggressive and continuing involvement of NGOs capable of sustaining international pressure and creating a political mass of scale that basin states are unable to bypass and therefore strengthen their efforts toward joint management through OKACOM. International financial institutions will also have a role, especially as donors to NGO efforts.

³⁰⁴ Dr. Mary K. Seely is a DRFN Associate on the Board of Trustees for DRFN.

International Financial Institutions (IFIs) - Global and regional organizations

In addition to basin specific commissions, institutions, and organizations there are global and regional non-state actors that impact transboundary water cooperation and riparian states. Key non-state actors include international financial institutions (IFIs) and regional organizations, like the International Monetary Fund (IMF)³⁰⁵, World Bank, and Southern African Development Community (SADC) respectively, and are constrained in the undertakings they can take part in. These non-state actors can still exercise significant influence through the types of assistance they offer to each of the countries in the Okavango River Basin.

The following discussion explores the World Bank and its respective basin portfolios and infrastructure projects, the United Nations (UN) involvement in the region, and then SADC. Further, this discussion briefly explains the general mission of these non-state actors and considers specifically how the World Bank and UN commitments to riparians and river basin commissions either alter the distribution of benefits from cooperation by the contributing resources to create incentives for agreements or provide resources that result in an increase of technical information but fail in considering other aspects of the cooperation hierarchy pyramid.

The World Bank makes available financial and technical assistance to developing countries around the world. Owned by 185 member countries, it is made up of two development institutions—the International Bank for Reconstruction and Development

³⁰⁵ The International Monetary Fund lends to countries with balance of payments difficulties, provides temporary financing and support policies to correct the underlying problems, and loans to low-income countries with the aim of reducing poverty. In addition, the IMF monitors economic and financial developments, directs its policy advice at crisis prevention, and provides technical assistance and training in its areas of expertise.

(IBRD), which focuses on middle-income and credit-worthy poor countries, and the International Development Association (IDA), which serves the poorest countries in the world. The overall objective of both institutions is to improve living standards and reduce global poverty. Although not a bank in the conventional sense, the World Bank is a complex organization. Its development institutions—IBRD and IDA—and financial groups -- Global Environmental Facility (GEF) Operations and International Finance Corporation (IFC)³⁰⁶ -- provides low interest loans, interest-free credit and grants to developing countries for many purposes, including health, communications, education, technical assistance, research, capacity building, and infrastructure development.

The Global Environment Facility is one of three implementing agencies of the World Bank. The GEF finances projects addressing six critical threats to the global environment: loss of biodiversity; climate change; degradation of international waters; ozone depletion; land degradation; and persistent organic pollutants. It serves as the financial mechanism for the Convention on Biological Diversity, the UN Framework Convention on Climate Change and the Stockholm Convention on Persistent Organic Pollutants (POPs). GEF financing is provided to eligible countries through the World Bank, United Nations Development Program (UNDP), United Nations Environmental Program (UNEP), four regional development banks, the Food and Agricultural Organization (FAO), International Fund for Agricultural Development (IFAD) and United Nations Industrial Development Organization (UNIDO).

³⁰⁶ The International Finance Corporation (IFC) is an instrument of the World Bank Group that provides loans, equity, structured finance and risk management products, and advisory services to build the private sector in developing countries.

The World Bank (or its agents, i.e. GEF, IDA, etc.) *could* help promote transboundary watercourse cooperation by creating incentives for agreement, developing consensus on the acceptable and appropriate behavior of riparian states within the basin through strengthening shared values and providing funding for technical information. More often, however, it has been known to fund water supply and development infrastructure within each independent state, such as the case in Botswana in the late 1980's (see World Bank Portfolio Table below). The majority of World Bank projects in the Okavango Riparians are related to health, capacity building, sector reform, and land and resource-animal conservation environmental management, not infrastructure development and not water related development or management.

World Bank Portfolio of Okavango River Basin States

In Angola, the World Bank's portfolio now comprises six current ongoing projects with a total amount of committed credits and grants of US\$279 million from International Development Association (IDA), and grant co-financing of US \$ 104 million. None of the six projects include infrastructure development or financial incentives for transboundary water cooperation commissions or technical assistance.

Botswana became a member of the World Bank and the IDA in 1968, two years after its independence. Now it is a contributor to IDA. In that time, the World Bank has approved a total of 28 loans and credits for Botswana for approximately US\$297.64 million. Botswana has an outstanding debt obligation to the World Bank for about US\$11.66 million. As of February 2007 there were no active IBRD/IDA projects in Botswana. In past years, IBRD/IDA projects in Botswana have been predominantly in the

areas of education, water supply, highway reconstruction, livestock management, and urban development

The last water supply project funded by the World Bank in Botswana closed in 1983. The project was to reduce water shortages and avert the repetition of future water shortages in Gaborone and in the meat processing center of Lobatse through 1988, and to prepare for additional water supply after that time. This would have been a three part project: (1) raise the existing Gaborone Dam by eight meters; (2) expand water treatment and transmission facilities; and (3) investigate sites for two additional dams and prepare preliminary designs for the dams and associated plant.

For Namibia, its first IBRD loan is a Development Policy Loan (DPL) of approximately US\$7.5 million was approved in May 2007. This is not an infrastructure loan. Instead, it will focus on the development of specific policies and instruments to implement sector reforms; implementation of these policies; and building institutional capacity required for effective implementation of sector reforms. Namibia has benefited from several Global Environmental Facility (GEF) grants. There are two active GEF projects at present: *Integrated Community-based Ecosystem Management Project* and *Namibian Coast Conservation and Management Project*. A third small GEF project—a pilot partnership for sustainable land management – is currently under preparation.

Based on current World Bank project portfolios in the Okavango (and Orange River) riparian states, none of the *current* projects affects directly transboundary river basin cooperation institutions. Although principally a recipient of GEF funding, OKACOM may be considered an exception. On the other hand, the United Nations (UN) and several of its programs (UN Environmental Program, UNEP, and UN Development

Program, UNDP) and departments, such as the Department of Economic and Social Affairs (DESA) considers sustainable use of fresh water resources an essential contributing factor to the socio-economic development of countries and their hydro-environmental systems. Toward that end, the UN funds transboundary watercourse cooperation or related research efforts by assisting countries independently, directly or indirectly through third party entities at the basin level like OKACOM, regional level like SADC, or as a consultative partner with Green Cross International (GCI).³⁰⁷

The UNDESA, along with GCI, United States Agency for International Development (USAID), and GEF have all contributed to funding river basin research and administrative support of OKACOM. Funding efforts by these entities of OKACOM (and SADC) have been directed toward improving the ability of OKACOM to function as a multinational planning and consensus building institution. Overall, international non-state actors have contributed to increasing the hydrological and technical knowledge base of the Okavango. However, they have been less successful in determining the real objectives and concerns of the basin riparians or increasing the understanding of the types of information needed for each riparian to comprehend fully the benefits and costs of reaching agreement and cooperation.

An important question to ask is if IFIs and donor support play a crucial role. Specifically, do IFIs function as honest brokers capable of moving the debate beyond conflicting national interests, issues of sovereignty, hydro-hegemony, asymmetry, and up-stream-downstream considerations? The case of the Okavango River basin illustrates

³⁰⁷ Green Cross International (GCI) is an international organization whose mission is defined as: providing assistance to communities affected by the environmental consequences of wars and conflicts, preventing and resolving conflict that results from environmental degradation, and promoting legal, ethical, and behavioral norms. GCI emphasizes its unbiased environmental analysis, expertise, education, research, scientific studies, and social and medical support.

how, at the operational level, improving the hydrological knowledge base, closing the technical gaps, and strengthening the basin's principal river basin organization, OKACOM, may have benefits to all its riparian states. However, such activity may be misdirected, if the knowledge-base of the full range of political concerns, like sovereignty, history, identity, hydro-hegemony, asymmetry, and hydrological realities, are not given equal or greater attention. If regulatory politics, sovereignty, and hydro-hegemony are the factors directing behavior, institution and capacity building are less likely to facilitate or force behavioral change or outcomes.

Namibia needs water and, as discussed, when the IFIs fund infrastructure projects within riparian states, there is the potential to increase and improve water supply. If these institutions and non-state actors fund other 'soft' project activity, such as capacity building instead of water and sanitation infrastructure, the redistribution of control over resources inter and intra-state is not likely, nor is the reallocation of economic benefits and costs. South Africa remains the regional hegemon, all flights still go through Johannesburg, Angola is still overwhelmingly occupied with civil war recovery and rebuilding a nation, Botswana touts its IJC victory and the delta's economic benefits over Namibia, and Namibia itself still needs to increase its water supply along the northern border it shares with Botswana and Angola, and its shared southern disputed border along the Orange River.

Key International Agreements and Conventions

There are several cooperation-based relationships between the basin-states, including bilateral and multilateral treaties and accords (agreements), international laws and conventions, regional protocols and treaties, and national laws and policies that focus

on transboundary water resources or ecosystems. A centralizing theme of these treaties and conventions is that states are entitled to utilize and manage resources within areas of jurisdiction; proposed plans should have no adverse effects on neighboring states; mutually acceptable solutions to water management and utilization should ensue; basin-states should share and exchange information; advance warning should precede intentions to alter the status quo; and in most cases they lack enforcement mechanisms and are not binding.

Four of these agreements are noted in the table below, as the Okavango riparian states are either signatories that have ratified these conventions or voted in favor of their adoption. There are many such international conventions and treaties. However, these four were selected as they are significant to transboundary water resources, were crafted with the intent to influence the behavior of states around transboundary water resources and unique international wetlands, and concern the protection and conservation of transboundary water resources.

Table 6. Selected list of International Agreements-Conventions to which Okavango River Basin Riparians are Signatories

<i>International Convention/ Treaties and Dates</i>	<i>Requires</i>	<i>Riparian States</i>
<p>Ramsar Convention on Wetlands of International Importance (Ramsar Treaty), 1971 <i>(Framework for national action and international cooperation for the conservation and wise use of wetlands and their respective resources.)</i></p>	<p>Requires: (a) formulate plans that promote conservation of wetlands in their territory, (b) consult with other contracting parties regarding the implementation of the convention's obligations.</p>	<p>Botswana Namibia South Africa Lesotho</p>
<p>United Nations Convention on the Law of the Non-navigational Uses of International Watercourses, 1997 <i>(This Convention is considered to be a 'framework convention'; in it needs further elaboration and specifications.)</i></p>	<p>Equitable, reasonable utilization (Article 5) and the No-harm Principle (Article 7) are the cornerstones of the Convention, with cooperation as the essential feature (Article 8). The Convention does not prevent states from departing from its general principles nor affect existing watercourse agreements.</p>	<p>Angola Botswana Namibia Lesotho South Africa</p> <p><i>(All voted in favor of the Convention)</i></p>
<p>Convention on the protection and use of trans-boundary watercourses and international lakes (Helsinki Convention), 1995</p>	<p>Signatories take measures to prevent, control and reduce any trans-boundary impact by ensuring (a) trans-boundary waters are managed in a rational, environment-friendly manner; (b) trans-boundary waters are used in a reasonable and equitable way; and (c) conservation and restoration of ecosystems.</p>	<p><i>(Rules are nonbinding, but conceptual rules framework were incorporated into the Revised SADC Protocol 2000)*</i></p> <p><i>*The 2000 Protocol is preceded by the 1995 Protocol on Shared Watercourses in the Southern African Development Community (SADC) Region.</i></p>
<p>United Nations Conventions to Combat Desertification (UNCCD), 1996 <i>(Concerns problems associated with widespread degradation of land in arid, semi-arid and dry sub-humid areas.)</i></p>	<p>Requires actors to: (a) promote cooperation among affected parties in the fields of environmental protection and conservation of land and water resources, related to drought and desertification; (b) undertake sub-regional, regional, and international co-operation; and (c) cooperate in the preparation of, and harmonize/complement desertification.</p>	<p>Angola Botswana Namibia South Africa Lesotho</p>

Generally, the principles espoused in the international conventions attempt to delineate the rights of riparian states to access and use the water resources of transboundary water resources. Concurrently they are intended to balance riparian use

with the doctrines of absolute territorial sovereignty, territorial integrity, limited territorial sovereignty and integrity, and sustainable management and conservation of the freshwater resource and ecosystem. Consistent with this approach is that which insists that upstream riparians consider community interests (watershed communities, others beyond the river basin that need the water, and the disproportionate impact on women and girls), and water use impacts on downstream users.

What these and regional and basin specific accords, treaties, or conventions have not captured adequately with regard to transboundary water-sharing political concerns are:

- How to define and manage water apportionment among basin states considered by all riparians as equitable and “fair”, however defined;
- Riparian differences of water use priorities;
- Compensation by one riparian for damage caused by another;
- Variance in riparian water scarcities;
- Prior appropriation or existing historic vested or ancient rights claimed by hydraulic civilizations, where new water demands conflict with natural or historic water needs and interests.

The non-governmental organizations (NGOs) have not had much success in addressing these more difficult and unresolved transboundary hydro-political consideration either.

Regional Transboundary Watercourse Framework - Revised Protocol on Shared Water Course Systems in the Southern African Development Community (SADC)

This section begins with a brief statement about SADC generally, its predecessors, one source of its funding, and concludes with its important relationship to transboundary water cooperation in the southern African region, specifically Okavango River basin. The SADC socio-political economic forerunner is the Southern African Development Coordination Conference (SADCC) which had as its origins another group known as the Front Line States (FLS). The SADCC was formed to counter the economic dependence on the apartheid regime of South Africa. SADCC member states included Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe.

The FLS were those anti-apartheid states of Angola, Botswana, Mozambique, Tanzania, Zambia and Zimbabwe that also sought economic liberation from apartheid South Africa. However, the FLS lent support to the black liberation movements against the apartheid regimes operating in South Africa and Namibia (pre-independence Southwest Africa (SWA)) and struggle for an independent Namibia. The transformation from the SADCC to SADC occurred in 1992, at which time, SADC determined that regional integration along several sectors, including energy, tourism, environment and land management, water, mining, labor, culture, sports, transportation and communications, were critical to the overall development of its member states. In recognition of the importance of water resources and because there are so many transboundary rivers in the southern African region, it was determined that the first treaty

agreement SADC undertook was shared water resources, which resulted in the 1995 Protocol on Shared Watercourse Systems.³⁰⁸

The relevant benchmark for shared transboundary freshwater resources for southern African river basin riparians is the August 2000 Revised Protocol on Shared Watercourses in the Southern African Development Community (SADC), hereinafter referred to as the “Protocol.” SADC’s water initiatives receive funding from several international donors, including the United States Agency for International Development (USAID) which made an initial investment of \$2,160,000 US, and a commitment to an additional \$6.5 million through 2008.

The revised Protocol replaced the 1995 SADC Protocol on Shared Watercourse Systems (Article 16) and articulates more specific obligations on the part of signatory riparian states. For example, under the revised Protocol member states are to put into place domestic legislation for the licensing of water resources abstraction and for the permitting of wastewater disposal. According to Article 2, the “. . . overall objective of this (revised) Protocol is to foster closer cooperation for judicious, sustainable and co-ordinated management, protection and utilisation of shared watercourses and advance the SADC agenda of regional integration and poverty alleviation.” The goal, then, of the Protocol extends beyond the integrated management of shared water resources, but connects sustainable management of those resources to poverty alleviation, equity, and protection of biodiversity. The Protocol also provides a framework for coordination and collaboration in the water sector that includes: (a) the ongoing program coordinated by the Permanent Okavango River Basin Water Commission to improve management of the

³⁰⁸ This was described to me in my interviews with several SADC officials in Lesotho in 2000 and in South Africa in 2002.

Okavango Basin and protect biodiversity; and (b) new activities to be jointly identified with SADC that support implementation of the Revised Protocol on Shared Watercourses.

There are several articles of significant interest in the revised Protocol, including the requirement that one state notifies another when it may be impacted by a water development scheme. In particular, the Protocol states that any state planning a water development or otherwise related water scheme that may have a significant adverse effect upon another watercourse state must notify that state and provide an environmental impact statement for the impacted state. The notified state has six months to respond. The Protocol states that the notifying state “shall not implement or permit the implementation of the planned measures without the consent of the notified state” (Article 4). The Protocol does, however, allow for those situations where advanced notification is not possible or necessary. In these cases, a state “may proceed to implementation”, as described in Article 4, but requires a “formal declaration” of the urgency to follow.

It is not clear how such provisions would ultimately be enforced, or by whom. The Protocol states that disputes should be resolved amicably. Failing that, disputes should be referred to the Tribunal. It is not clear, however, how tribunal referrals are to be managed. This is a significant issue, as the Protocol does not curtail the sovereign authority of riparians to develop their water resources according their respective needs. Under the terms of the Protocol, SADC member states may continue to establish bilateral agreements and exercise actions to secure water resources to meet their respective needs and development objectives. For example, very recently Botswana has begun studies that

explore using water inter-basin-transfers from Chobe/Zambezi River to augment the existing water supply beyond 2016.³⁰⁹ Like the international instruments for the sustainable management of shared transboundary watercourses, the Protocol provides only a framework for cooperation. Nonetheless, as a signatory to the Protocol, as Botswana pursues its water interests in the transboundary Chobe-Zambezi River, it is required to take into consideration objections from member states. Exactly how that is to take place is not yet clear. The Protocol is also weak in establishing upstream-downstream or water apportionment dispute resolution procedures and reigning in the regional hydro-hegemon.

Governments jealously maintain sovereignty over their own stretches of rivers and freshwater resources, especially where water resources are scarce, and they involve the discourse of “national interest” to legitimize development of a basin’s resources. By its own Articles, the Protocol supports and continues such a defense. The Protocol’s present language leaves riparian state sovereignty strongly intact, and its very authority might be compromised since its present funding relies heavily upon international donors.

Shadows of the Past

“A nation without a past is a lost nation, and a people without a past is a people without a soul.” Sir Seretse Khama, (1921 – 1981) the first President of the Republic of Botswana.

The colonial borders of Angola, Namibia and Botswana were decided at the Berlin Conference in 1884 and in several treaties signed in the 1880s and 1890s between Portugal, Britain, and Germany. As in all of colonial territories, the legal and governing

³⁰⁹ From the Botswanan government’s website. Accessed April 2008 and available at <http://www.gov.bw/cgi-bin/news.cgi?d>.

machinery put into use were designed to benefit and serve the colonial enterprise. In this region in particular, South Africa's dominance of territory included Zimbabwe (formerly Rhodesia) and Namibia, where the liberation struggles were fought against colonialism *and* an apartheid system.

The 'shadows of the past' -- colonialism, colonial rule, and apartheid -- had a profound impact on the way people perceived one another across racial, religious, and ethnic boundaries. It directly influenced flows of wealth, education, health and other services, employment options, developmental opportunities, resource allocation and exploitation, infrastructure, and the delineation of political boundaries, external and internal. The limitations placed on would remain even after independent states were established.

Colonialism and apartheid established social and identity structures, institutional roles, developmental practices, and political relationships that have not dissolved at independence. The pre-independent water policy and priorities in Namibia, and other southern African states, were structured around the exploitation of water resources for the purposes of supplying and meeting the water needs of white-run commercial farms and white-owned mining concerns. According to Forrest³¹⁰ and Turton,³¹¹ governments utilized mega-state (white dominated colonial ruling authority) mega-sized water projects as conduits of power, through which pipelines, water canals, dams, hydroelectric projects

³¹⁰ Forrest, "Water Policy and Environmental Sustainability."

³¹¹ Turton, "Water and Sustainable Development."

and irrigation schemes served to reinforce state authority at the same time as they helped to entrench the economic privileges of white minority farmers.³¹²

How the Okavango Basin riparians gained their independence impacts how they interrelate with one another, and their respective institutional governing capacities. Additionally, it established who controlled water resources and how water was distributed. More importantly, the path to independence would, in many respects, influence political behavior of post-colonial independent states and dependencies. For example, unlike Namibia and Angola, Botswana's political status as a British Protectorate provided a modest amount of political insulation from South Africa's apartheid rule and politics. It meant that Botswana would not engage in many armed struggles for its independence, would not have two hugely different socio-economic groups, living entirely different experiences, like the black Africans in townships with minimal infrastructure, services, education opportunities and white settler descendants living in modern cities. In Botswana (Bechuanaland Protectorate), with its traditional tribal chiefs left intact and continuing to administer locally, there was less pressure to protect European and colonial settler interests. Further, under such circumstances, the institutionalism of racism and other apartheid practices did not inflict the same consequences on the national black psyche or create such dramatically different societies.

Angola and Namibia not only engaged in violent and armed struggle for their respective independence -- they found themselves allies against South Africa, whose colonial legacy helped guarantee its continued status as regional hegemon. Namibia's (Southwest Africa, SWA) final independence from South Africa would be the result of a

³¹² Forrest, "Water Policy and Environmental Sustainability."

multilateral political process involving the United Nations, as well as armed conflict. Angola would obtain its independence from Portugal, but descend into a civil war for control over the newly independent state, a struggle that would involve Namibia, particularly its northern areas, the Caprivi strip region, and the Namibian/Angolan territory in the Okavango River basin.

Three events connected with South Africa contributed to increased political awareness and the impetus for the formation of a nationalist party (the urban-based Botswana People's Party, BPP) in Botswana: (1) the Sharpeville massacre; (2) the banning of the African National Congress (ANC) and the Pan-Africanist Congress (PAC); and (3) the influx of an estimated 1,400 black South Africans into Bechuanaland. Holm³¹³ argues that the influx of politically aware South Africans into Bechuanaland would not only fuel the BPP, which was serving Batsawana migrant workers in Johannesburg, but would become a voice for total independence for Bechuanaland.

During the apartheid period, when Namibia was part of South West Africa (1915 – 1989), South African bureaucrats controlled all water management decision-making in what would become the Republic of Namibia. Prior to South Africa's control, the territory of what would become Namibia was controlled and occupied as a German colony (1895-1915). During both periods, white farmers, mining and urban interests were the principal beneficiaries of water policy and projects. Namibia's 95 years of colonialism reflect the political interests that not only gave water preference to whites, but exploited aquifer drainage and underground access to natural water pools. This

³¹³ Holm, "Botswana: A Paternalistic Democracy," 185.

exploitation has now led to aquifer shortages.³¹⁴ Further, South Africa's institutions, reliable (and usually unchallenged) science, data, and technological knowledge base of the water sector dominate the region and are reflected in its high level of involvement in the Okavango River Basin.

Conclusion

What the Orange and Okavango River Basins have in common hydrologically is Namibia, its overwhelming need for water, and its riparian position as a mid-to-downstream state in both basins. Another factor both the Orange and Okavango River basins have in common politically is South Africa. In the Orange River, South Africa is a basin riparian; in the Okavango, it is not, but still exerts influence. Each of the basin riparians also has a long-standing socio-economic and political history with South Africa that extends into the present, and is likely to continue into the future.

In the Okavango Basin are several factors that contribute to the hydro-politics of the basin, and the potential conflict or cooperation among riparians. They include:

- (a) Climate, geography and hydrology—the climatic oscillation between wet and dry years is a key variable;³¹⁵
- (b) The end of the civil war in Angola has opened opportunities for Namibia, as an upstream riparian to Botswana, to enter bilateral transboundary water agreements with Angola that potentially weaken Botswana's position as a 'downstream' riparian;
- (c) Botswana's potential political influence and negotiation power with South Africa in the Orange River Basin as leverage over Namibia in dealings in the Okavango;

³¹⁴ Forrest's "Water Policy and Environmental Sustainability," Turton's "Water and Sustainable Development," and Lange's "An Approach to Sustainable Water Management" all describe this pressing concern.

³¹⁵ Turton and others, *Transboundary Rivers*.

- (d) The high degree of reliance on the Okavango River by all three riparian states with few real viable alternatives. The concern over ecological health, along with the national, local, and international interests in the Delta and the conflicting and competing interests of human development throughout the basin, provide an “archetypal example of complex and conflicting demands;”³¹⁶ and
- (e) The shadow of the past relations between Botswana and South Africa as they relate to Namibia, Namibia and South Africa—Orange River dispute—and between Botswana and Namibia. The shadow of the past particularly informs the conflict over several river islands, particularly Sedudu (Kasikili) Island.³¹⁷

If the number of agreements, joint permanent commissions, institutional organizations, and history is any indicator, there is overwhelming evidence of multiple levels of cooperation among riparians sharing the freshwater resources in the Okavango River Basin. However, it is important to understand that lack of conflict does not necessarily equate to cooperation, and importantly, cooperation itself can become a coercive force.

As discussed in Chapters One and Two, contemporary theories typically explain cooperative and reciprocal relationships by framing them as structures through which prosperity is gained and community built.³¹⁸ On the other hand, cooperative relationships are also defined as exploitative structures that obscure the exercise of power.³¹⁹ In this instance, with the support of the international community, NGOs and others, Botswana’s

³¹⁶ Ibid., 354.

³¹⁷ Simmering conflict continues between Namibia and Botswana over Botswana’s construction of an electrified fence along its border with Namibia, along the Caprivi Strip. Ostensibly, Botswana constructed this wall to stop the spread of cattle diseases. Botswana asserts that it had to destroy an estimated 300,000 head of cattle after an outbreak of disease, which Botswana believed came from migrating buffalo from Namibia. The fence also restricts the annual migration of large wild animals, such as buffalo and elephants, into Namibia.

³¹⁸ Fukuyama’s *Trust* and Putnam, Leonardi, and Nanetti’s *Making Democracy Work: Civic Traditions in Modern Italy* provide further resources on this topic.

³¹⁹ Bourdieu, *Outline*.

efforts to have the Okavango Delta declared a Ramsar site, without consultation with its neighboring states demonstrates clearly an exercise of power by Botswana, and shrewd politics on their part. Did Botswana recognize or consider its actions coercive? Most likely it acted, as states are prone to do, in its own interest. However, as Portes and Landolt suggest, the first approach fails to recognize the place of coercion in the construction of social order.³²⁰

Would it have been possible to designate the Delta as a Ramsar Site if Botswana's neighboring states had been consulted? Overwhelming international support and the uniqueness of the Okavango Delta would most likely have resulted in the Delta being designated as a Ramsar site with or without input and support from Botswana's neighboring states. The Delta's long-term survival, however, depends upon resources that extend beyond Botswana's border. It is dependent upon Angola and Namibia limiting their upstream actions. Future transboundary water cooperation on other matters may have been enhanced, if Botswana had involved Namibia and Botswana, and if some reciprocity for their support had been established beforehand. Additionally, the Delta's survival will depend upon factors well beyond any unpredictable or negotiated state behavior, such as climate change and rainfall.

According to Axelrod, cooperation does in fact work for those involved in reciprocal relationships.³²¹ However, the "reciprocity" for Namibia and Angola has not yet been determined. If part of the initial 'Ramsar' negotiations, Botswana may have been required to offer Namibia and Angola a share in the tourism profits, or in the case of Namibia, Botswana may have had to agree to support Namibia's position on where to

³²⁰ Portes and Landolt, "The Downside of Social Capital," 20.

³²¹ Axelrod, *Evolution*.

establish the Orange River boundary with South Africa in exchange for their respective cooperation.

The commitments and contradictions inherent in cooperative and reciprocal relationships extend beyond the physical confines, and Namibia's water needs are so great that it may have no choice but to divert water from the Kavango. In contrast to Namibia's dire straits, Angola has hydro-political leverage that it has not begun to exercise, including but not limited to strong bilateral agreements with Namibia—a state with whom it shares a past with regard to South Africa's colonial control, and Namibia's own struggle for independence.

Colonialism, its resultant struggles for independence, apartheid, the Cold War, and Angola's own civil war, have left imprints on current riparian relationships, influenced current water management decisions, and conditioned each riparian government's institutions and abilities to engage in transboundary watercourse cooperation. For Namibia and Angola, shared water resources (the Okavango *and* the Cunene (Kunene) Rivers) are important factors in the Angolan post conflict reconstruction and development.

As with the OSRB, the intent here is to review how the conceptual factors and hierarchy of the obstacles to cooperation (pyramid) are tested in the case of the Okavango River basin. The circumstances of the Okavango are significantly different than those of the OSRB in that it is an obvious example of the contradiction and conflict between ecological needs, water supply, and state borders. As discussed previously in this chapter, there are similarities and differences between these two cases. The internationalization of the basin and accompanying interest in the Okavango Delta in Botswana, and the

upstream downstream relationship between Namibia and Botswana both impact the politics of each basin. As in the OSRB, there are asymmetries of power, capacity, resources, and knowledge among the basin riparians. In both basins the shadows of the past are ever present and create a similar set of problems for those states recovering from repressive colonial regimes which denied large segments of the population education, employment, developmental infrastructure, and other advantages granted white settler populations.

In the Okavango basin, Namibia seeks to secure access to and control over the upper reaches of the water that traverses its territory, and over which it may exercise its sovereign right to do so. Again, returning to the factors below the heavy line in the shaded base of the pyramid, *sovereignty, upstream-downstream conflict, conflicting national and international interests, hydro-hegemony* and *asymmetry* are the factors which absolutely must be considered and resolved before any meaningful cooperation can occur even in the presence of a TWA. Because of its special ‘protectorate’ status, much of the social networks and local self-governing infrastructure remained in place. However, while Namibia’s domination and control by South Africa when part of its territory left a cadre of water elites and intellectual water infrastructure capital, Botswana lacks much of the technical capacity and scientific and infrastructure knowledge available to its co-riparian. Angola, the upstream riparian and potential future Okavango basin hydro-hegemon, is in total recovery from its post-colonial, long-term civil war. Right now, Angola is water rich, and is currently non-threatening to the downstream-flowing water necessary to sustain the Okavango delta ecosystem.

In the Okavango basin, threats from a changing climate, increased drought, and hydro-geography impact the delta's chances for survival and may further exacerbate scarce water supplies. The internationalization of the delta has resulted in an overwhelming number of IFI donors and international NGOs all making sizeable contributions to its continued survival. This is an advantage for Botswana, but makes water an economic and ecological good that complicates Namibia's ability to peacefully secure its water supply needs—creating *conflicting national and international interests*, one of the major obstacles identified in the pyramid. In this instance, water *is* the issue, as the major question surrounds Namibia's need to secure sufficient water supply to meet its growing population and agricultural demands, at the potential expense to the ecology of the delta.

In this case, the factors of *asymmetry, riparian position, upstream-downstream conflict, sovereignty, and conflicting national and international interests* are all influencing the level and type of cooperation occurring in the Okavango River basin in both positive and negative ways. However, another factor also comes into consideration: the cost of cooperation. The cost of cooperation is driven by local *and* global efforts to protect and sustain the Okavango Delta.

The delta is threatened by more than proposed withdrawal by Namibia if the ENWC (also called the Rundo-Grootfontein Pipeline) is completed to transfer water from the Okavango to supply Windhoek. Other threats include: agriculture; cattle production; wildlife utilization; tourism, within the delta itself and within Botswana; a more water-astute Angola aggressively making use of its upstream position; global climate change; and, as stated earlier, proposed diversion of water by upstream users. These threats

represent global, international (transboundary), and national/local district problems which tap into multiple factors in the hierarchy of obstacles to cooperation. They also complicate and increase the costs, as well as the potential benefits, of cooperation in the Okavango basin.

There are international institutions, some of which include RAMSAR, the World Heritage Convention, International Rivers, USAID, and SIDA, all interested in the Okavango whose perspective which may not be appreciated or adequately recognized by OKACOM. From an international relations (IR) perspective, the Okavango River basin reflects a more functionalist perspective than that of the OSRB. In spite of Namibia's water needs, it appears that the dominant goals of the actors involved in the basin are shared prosperity and sustainable peaceful cooperation. Increasingly, international organizations and donors have become key actors and are responsible for policy implementation surrounding the protection of a freshwater ecosystem global importance. In this internationalized basin, IFI, international organizations and donors have become the forces behind agenda formation and significantly influence the political will of Botswana and that of South Africa in the context of protecting the delta.

As a result of this international interest, TWA cooperation and national hydro-politics may conflict with one another. For example, an early Botswanan National Development Plan—NDP6—1985 to 1991, emphasized food self-sufficiency wherein a later plan emphasized food security both have implications for Delta water use for agriculture and related irrigation.³²² Over time, however, that has changed and NDP8 recognized delta revenues from tourism, which has directly forced policy decisions on

³²² Hasler, "Political Ecologies of Scale and the Okavango River Delta"

how delta waters are to be used.³²³ This is just one of many examples where Botswana is exercising its sovereignty through deciding how its water resources will be used and weighing them against national and international interests and the costs of cooperation. While international interests have recognized environmental water rights as a separate user category, except as related to delta tourism, Botswana has made the connection explicit, inextricably tying its water-use with both tourism and the state's economic well-being. These factors must be reconciled before quality cooperation within TWAs may occur and can only happen where space for positive conflict is created.

Namibia, Botswana, and Angola all accept the internationalization of the Okavango as it relates to international interests in the delta's survival and sustainability. But, the IFIs, international NGOs and donor agencies are simultaneously supporting upstream claims for Okavango water resources, including the construction of proposed dams in Angola and as mentioned previously, the Namibian ENWC pipeline. When OKACOM was first negotiated (1994), Namibia expected that agreed access would result in an equitable share of the river's waters. That has not happened, and is less likely given the internationalization of the river and particularly the delta—clearly bringing into question the *treaty/agreement process*.

As one further test of the claims in chapter two and the pyramid's conceptualization of the obstacles to TWA quality cooperation, I want to touch briefly on the matter of hydro-hegemony within the Okavango river basin. It may appear that there is no hydro-hegemon in the Okavango River basin. Angola, the upstream and headwater riparian is unable to do much of anything as its attention is on post-civil war

³²³ Ibid.

recovery. Namibia, the mid-stream riparian, has the skilled water elites, but it takes more than knowledge to function as a hydro-hegemon. Namibia has not acted on its objectives to extract and divert water resources from the river where it crosses into its territory.³²⁴ Botswana, the downstream riparian, has the most to lose on a regional and national level should the Okavango River cease flowing into the delta. However, it also lacks the ability to persuade its other riparians to behave in any particular manner. That leaves South Africa.

South Africa is not a riparian within the Okavango River basin. It does however exercise significant regional influence on the basin's actors, facilitates studies, attracts international donor interest, and has been involved or directed, as a leading partner with the Southern African Community Development Water Sector and other international interests, conferences and workshops concerning the Okavango River basin and delta. Although I would not consider South Africa the basin hydro-hegemon in the same manner as it exists in the Orange-Senqu River Basin, it is an important actor and has strong connections to the water elites in Namibia and Botswana, and to OKACOM membership. Still, South Africa's ability to function as the hydro-hegemon not only in the Okavango River basin, but also in the SADC region more broadly, cannot be understated or underestimated.

While securitization is not an overriding theme in either basin, the OSRB riparians, especially South Africa, are more likely to take on the behaviors attributed to states operating from an international relations Realist framework, especially if there are dramatic shifts in water supply outpacing South Africa's ability to respond. It would

³²⁴ I do not attribute non-action on Namibia's part to fear of reprisals, since it has proposed that it may take such action in the future.

appear that a key instrument of state policy and force behind South Africa's TWA ORASECOM agenda is long term water security and economics. Given the dominant goals of the actors, especially South Africa, the OSRB has the potential to become securitized and thus fall into the realist IR framework.

Chapter 5 - Research Conclusions

Summary

There are complex technical, historical, and political issues shaping the hydro-politics of the resources of the Orange and Okavango Rivers. Classic environmental conflict-cooperation arguments, at their peak during the 1990s, and the eternal debate between the Malthusian-Hobbesian theory (environmental scarcity leads to conflict) and Cornucopian-Lockean theory (technology plus virtual water solves everything) are important contributions. However, both of these theories fail to provide a deeper understanding of the nature of hydro-politics, including the basis for water conflict, the types of conflict, the rationale behind transboundary water cooperation, and the types of cooperation possible. There is a need to approach political realism around TWAs and environmental cooperation over shared freshwater resources in a more systematic manner.

Accordingly, this research analysis has argued that, central to that deeper understanding, is to create a ranking for the obstacles other scholars considered relevant to the development to TWAs and cooperation. I used Maslow's hierarchical approach-triangle to visualize the order of the obstacles to quality cooperation and positive conflict as a first step. Upon closer examination, however, the hierarchy of obstacles to cooperation provided a means to integrate missing and important factors from the earlier theoretical frameworks, such as hydro-hegemony. Developing this hierarchy also suggested that environmental cooperation comes with an array of problems, as identified in the first two levels of the triangle's base (these include the number of countries,

sovereignty, asymmetry, riparian position, conflicting national and international interests), that must be addressed. For the purposes of this argument, a triangle was insufficient. A factor was missing -- the shadows of the past. The strategic-geopolitical analysis of TWAs and environmental cooperation is multidimensional and complicated by history. This multidimensionality requires a representation able to accommodate the many viewpoints implicit in this analytical style. Because of this, I expanded Maslow's triangle into the pyramid (Figure 2). To achieve quality cooperation and a space for positive conflict, the conditions for cooperation³²⁵ not only have to consider obstacles to cooperation (Figure 2-The Pyramid). They must also be addressed in a specific order, as described in Chapter 2, and they must be mindful of how history conditions cooperation.

Both basins have TWAs. Given how the factors at the bottom of the pyramid condition what is possible at the next level, it is not clear how to assess the effectiveness of their respective TWAs. In the instance of the Orange and Okavango River Basin cases, we are able to see how geopolitical interests and history condition the types of environmental cooperation possible, even in the presence of existing TWA commissions. In both of the case studies, we see how the hierarchy of obstacles to cooperation (The Pyramid, Figure 2) becomes operational. Beginning at its base, history, economics, and technological mastery make South Africa the hydro-hegemon. Both the TWAs described are multilateral rather than bilateral agreements. More actors, greater asymmetry, concerns over sovereignty, conflicting national agendas, and multiple international interests further complicate the potential effectiveness of these TWS in reaching quality cooperation.

³²⁵ LeMarquand's *International Rivers* and Just and Netanyahu's "International Water Resource Conflict" both provide an in-depth analysis to the conditions for cooperation.

In the Orange River Basin case, the pyramid allows us to understand Namibia's sovereign territorial concerns, its need to counter SA hydro-hegemony, and exploit its own resources and meet its water needs. For the non-hegemonic states, Lesotho and Namibia, agreeing to a TWA may be nothing more than recognizing the cost of cooperation is significantly less than protracted conflict, where they are likely to win nothing. Sometimes this compromise might be financially advantageous. In the case of Lesotho, this riparian state would not be able to negotiate around those basic obstacles anyways, so any financial benefits may be seen as a bonus. Further, in so doing it may gain technical information and data and negotiation skills not otherwise available through the practical leadership (or perceived generosity) of the hydro-hegemon. Lesotho's riparian position has made it a political player from a state-centrist perspective, but, in the future, its juridical stance in the LHWP corruption cases may improve its negotiation-conflict resolution strengths in the overall ability to engage in positive conflict.

In the case of the Okavango, Namibia's water fortunes are improved; it is upstream from Botswana, and shares a mutually supportive history with Angola in its liberation struggles against South Africa. The presence of a riparian hydro-hegemon in the Okavango can be disputed. South Africa has assumed that role, but one day Angola may be poised to assert itself as serious competition. Angola, still the local unknown in regards to its water development plans, is presently engaged in post-civil war recovery (conflicting national and international interests), has no costs of cooperation to speak of, and is likely to benefit from participation in Okavango cooperation regimes by obtaining technical information and scientific data not currently available.

Botswana has also found the costs of cooperation beneficial, especially as it relates to the Okavango Delta. However, Namibia and Botswana have only recently addressed a conflict regarding sovereignty with its origins in colonial history. Botswana also remains the downstream riparian, and is still confronting its burgeoning water needs. At present, Botswana benefits tremendously from South Africa's hydro-hegemonic stance within the Okavango, as South Africa has helped advance the internationalization of the Okavango Delta, provided technical reports, improved data, and helped to counter Botswana's downstream riparian disadvantages with the basin.

No timeline is discussed in this research, but there is ample evidence to suggest that post-colonial southern African states have turned their attention to the formalizing their transboundary water agreements. Such efforts can be quantified on the basis of the numbers of and formalization of agreements (although multilateral agreements are rare) and increased financial investments in capacity building. These efforts also include the broadening and strengthening of institutions such as SADC, in order to encourage water resource development and to draw these matters to the attention of national, regional, and international actors. A few of the external drivers expressing interest and financial support in water matters in Africa were mentioned in the case studies. Others for whom this has become something of a priority include the UN-Water/Africa (Inter-Agency Group on Water in Africa) and Africa Water Vision 2025. The 2002 World Summit on Sustainable Development connected safe and reliable water supplies to the achievement of the Millennium Development Goals (MGDS). Even the United States Congress³²⁶ has

³²⁶ At a May 2007 hearing of the House Foreign Affairs Subcommittee on Africa, USAID, Subcommittee Chairman Donald Payne said: "Lack of clean water worldwide, but especially in Africa, is a global crisis." To provide clean water, USAID was funding water-supply activities and hygiene programs worth \$91.6

recognized and accepted that Africa is facing severe freshwater stress. A clean, reliable, readily available, and convenient water supply for daily needs is important, but this specific issue is not the focus of this research. This research focuses on the ways in which the lack of access to clean, fresh, reliable water is a vestige of colonial rule. Consider, for example, the Congo region; water resources are abundant, but the availability is one of the poorest in Africa. There is plenty of water but the region lacks the political capacity and infrastructure to deliver it.

This issue specifically impacts the countries involved with SADC. The black township Katutura, just outside of Windhoek, Namibia is the home to approximately 60% (150,000) of the urban area's population but lacks both a broad municipal water infrastructure and a reliable drinking water supply, a pattern repeated in many of the townships in South Africa as well. Since Namibia's independence in 1990, and the 1994 elections in South Africa, their respective governments have been trying aggressively to improve the clean water delivery and sanitation.

The analysis presented here leaves room for additional interpretation of the hierarchy of obstacles *and* has left open the undeniable possibility that hydro-politics is not solely, or even primarily, about water resources. Indeed, this study strongly suggests that, notwithstanding the need for an increasingly reliable and equitable water supply, hydro-politics brings out other considerations; chief among them are sovereignty, hegemony, and the role of history in impacting the prospects for transboundary water

million, for the 2006-2007 fiscal year, in more than 30 African countries and has planned to spend an additional \$8 million more for 2007-2008 on clean water efforts. From <http://usinfo.state.gov>.

cooperation. Given these various non-hydrologic factors, it is suspect to suggest that transboundary water cooperation is solely about shared water resources.

The emergence of a meta-theme about the global freshwater crisis has been gaining in its ability to capture news-headlines, lead journal articles, and special reports. It has also become the central focus of many international and regional organizations and institutions. There *is* reason to believe that the great themes surrounding the earth's water limitations; diminishing aquifers, polluted water supplies, and an increased demand brought on by rapid population growth, urbanization, agricultural needs, and energy production are all creating a strain on maintaining sustainable water supplies. When linked to the growing alarms over the impacts of climate change on water resources, the increasing frequency of drought, and a reconsideration of security concerns, it is not unexpected that the volume on the fragility, sustainability, and long-term availability of freshwater resources is turned to "high." The global water crisis has several different contexts: sustainability, the political economy of water scarcity, and the basic need to supply water for human needs, agriculture, and sanitation.

According to the African Ministers' Conference on Water (AMCOW), more than 300 million people do not have access to safe and reliable drinking water supplies in Africa. In response, the AfDB suggests that barely four percent of water resources in Africa are exploited. Other reports indicate that water delivery, where it exists, is subject to infrastructure inefficiencies, over-extended systems, poor maintenance, and outdated technology. I believe that this water crisis should be detached from the hydro-political analysis on conflict-cooperation transboundary water resources. The debate surrounding the transboundary water resources is rooted in matters of power, sovereignty, hegemony,

hydro-hegemony, and the ways in which history determines the prospects of cooperation. The rhetoric surrounding the freshwater crisis in Africa focuses on the material end-results of this debate, whereas I am focusing on the discourse surrounding the issue, and the political machinations reflected in that discourse.

Water is essential to life. Water resources are important to food security, transportation, freshwater ecosystems, leisure, identity, culture, virtually all the products used in the everyday, and, most importantly, energy. For the Orange-Senqu (OSRB) and Okavango riparian states, water will be subject to increasing population and development demands. The imbalances between availability and demand, the rising need to protect the ecosystem, and sharing water resources have all been identified as critical goals for the basin states. Evidence provided in these case studies demonstrates how regime formation and treaties and agreements such as OKACOM and ORASECOM, and the full implementation of the SADC Protocol, have been the most visible instruments driving transboundary water cooperation in the Okavango and Orange-Senqu river basins.

Much of the financial, technical, and knowledge resources supporting these transboundary regimes has been from international donors, a fact not lost on SADC member states.³²⁷ With the exception of Lesotho, states in both basins are more economically developed than all others in sub-Saharan Africa. They are faced with delivering upon and financing the promises of independence as well as remedying the inequities of the past. As a result, these states have embarked on expansive development

³²⁷ Integrated water resources management (IWRM) is the direction SADC and its partners, the Global Water Partnership—Southern Africa (GWP-SA), the World Conservation Union (IUCN), and the Danish Development Agency (DANIDA) are going in their regional efforts to increase access to clean water and improve sanitation in an equitable and sustainable manner. The conference “Watering Development in SADC: Beyond IWRM concepts and the Converted” provided an opportunity for a regionally specific, multi-stakeholder conversation to occur.

activities that include alleviating poverty, providing much needed housing and education, building utility (electrical, water, roads) infrastructure, and job development. For the time being, it may be necessary for financially strapped African states to orient their transboundary freshwater agreement agendas toward the external interests of international donors.

In South Africa and Namibia, the application of technical and engineering solutions has driven their water agenda in the past, and will be a significant part of growing future capacity. IBTs, dams, water transfer schemes, and water practices designed to serve relatively small white settlement populations and their agricultural interests dominated past water practices *and* are in place today. Angola, after decades of civil war, remains a water-rich state. Presently, its internal water quality concerns are supplying an urban population, industrialization, and infrastructure development. Botswana, with its traditional Sotho greeting “Pula”³²⁸ (“Let there be rain!”) is currently meeting the majority of its water needs from groundwater extraction. Botswana’s hydro-vulnerability is based on the high percentage of surface water resources that originate outside of its territory. Because of this vulnerability, Botswana was the most reluctant to provide information, as it considers water a strategic issue. Still, despite its dry climate, cattle farming and beef production are the dominant professions within Botswana.

Lesotho and South Africa are inextricably linked geographically, and also hydrologically, economically, and politically through the LHWP. One official³²⁹ with

³²⁸ In Setswana, “Pula” means rain.

³²⁹ Mr. Reginald Tekateka has had several high-ranking positions in the water sector. At the time of my interviews (2000) he was the Chief Delegate for the Lesotho Highlands Water Commission for the Republic of South Africa (RSA). In 2003, he was the Chairperson, Orange-Senqu River Commission (ORASECOM) and Chief Delegate Department of Water Affairs and Forestry (DWAF). More recently, in 2007, again representing RSA, Mr. Tekateka is the Chair of the Global Water Partnership-Southern Africa.

whom I spoke shared that the LHWP was an agreement outside the realm of the Protocol, but that the 1986 LHWP Treaty had “equalized the status of Lesotho with that of South Africa.” He added that, for Lesotho, “. . . the LHWP was a development project, for South Africa it was a water project.” When asked about the SADC Protocol, he thought that it had raised Lesotho’s awareness of the “Senqu having downstream implications” and that reference to the Senqu-Orange River change “was driven by political sensitivities, because of the past and because the SADC Protocol was driving inclusion.” As an almost-quiet side comment, he murmured that the hand-picked governing board for the LHWP had been established by law and was composed of Lesotho civil servants without the necessary skills or experience, in part because of a shared heritage of colonial South African politics.

There is a consensus among experts that international watercourse agreements must be more concrete, setting out measures to enforce commitments made and incorporating detailed conflict resolution mechanisms in case disputes erupt. Better cooperation also entails identifying clear yet flexible water allocations and water quality standards, taking into account hydrological events, changing basin dynamics and societal values. Finally, international watercourse development may require some compensation mechanisms, such as payments for transfer of water rights. Based on the analysis presented here, there is little evidence of such progressive and explicit development in the content of cooperation over time. This is in part because international donor involvement may not be able to directly influence local needs or accommodate local (sub-national basin level stakeholder) priorities, and because what looks favorable from a hegemonic

perspective may not be perceived in the same way by the weaker riparian states looking through the shadows of the past.

Liberalists have treated it as self-evident that interdependence equates to increased cooperation. However, from the perspective of a hydro-hegemon, cooperation may be pursued as a means to redirect interdependencies in such a manner that subordinate actors not only accept the hegemon's authority, but also internalize its values and norms. Under these circumstances, the results are neither negative nor dominative, but add order and stability, and, according to regime theory, can lengthen the "shadow of the future" for all involved.³³⁰ By focusing cooperation, a hydro-hegemon like South Africa can hide the negative effects of power asymmetries. Despite this occlusion, the non-hydro-hegemons may grow to resent their dependency on the hegemon as well as the tactics the hegemon employs to sustain its power and, in this case, protect its water resources. It is under these circumstances that the shadows of the past matter.

Understanding what is happening in southern Africa in the Okavango and Orange-Senqu river basins have implications on a global scale. In the Okavango, Botswana's and Namibia's water needs may ultimately trump the long-term ecological survival of the Okavango Delta and its system of wetlands. Both states' water needs, potentially, are placing a strain on the waters that assure the Delta's survival. Both countries are mostly desert, need water, and have competing water requirements for food and development, like many other areas in the world where there are similar debates over shared transboundary scarce water resources.

³³⁰ Baylis, "International Security in the Post-Cold War Era."

Many of the issues confronting the riparians of the Orange-Senqu River are similar to those facing the Okavango riparians. However, there are also different points of conflict. If one were to put the border demarcation issue between Namibia and South Africa to the side, the central remaining issues include the increasing demands on water resources and the growing need to manage available water resources in a sustainable manner in order to reduce strains on a finite resource. Finding ways to first determine the type and level of conflict as well as subsequently addressing each through cooperation agreements, regimes, behavioral change, technology, and engineering is part of the challenge. That works when water *is* the problem. When water *is not* the problem, a different set of solutions and a different form of analysis is required. While this research may appear contradictory about whether or not water is the problem, it recognizes that both scenarios may exist, and works to distinguish between transboundary water conflicts that concern one and not the other.

What are the possible lessons from this research? More broadly, what are the possible policy implications one can draw from these case studies? Many countries have developed internal approaches to resolve water problems, although some have been more successful than others. The riparian states in each of these basins are no exceptions. On an individual country basis, South Africa has been successful—to a fault. When placed in a context incorporating its political and hydrological history, the extensiveness of its water infrastructure and successful implementation of its water development plans, South African's continued success is marred, especially when one considers its continued inability to provide water delivery and sanitation to black townships—a deficiency that post-apartheid democratic South Africa is aggressively trying to remediate. Still, the

water problems and plans are compounded by flows crossing national boundaries, its own hydro-hegemony, riparian position (up-stream, down-stream), and the shadow of the past, which may result in a clear advantage of one state over another, all of which forces the states into a situation of interdependence. In addition, there is some debate over which ‘water crisis’ to address first, and how that is determined, i.e. whether it is driven by donors, global water agendas, local stakeholders, regional cooperation regimes or individual states. By determining which water issue to focus on or whether to address the multiple aspects, riparians define the terms of their positive conflict and delineate the obstacles to quality cooperation.

One recommendation to actors trying to promote transboundary water cooperation would be to distinguish and identify which water issue they intend to address. They would then need to divorce that issue from other water-related concerns, except where those issues directly impact the issue in question. The risk, of course, is that IFI and donor support may choose a different focus, which results in less international funding to support an alternative agenda.

In each basin the national responses to transboundary water resources and cooperation regimes, ORASECOM and OKACOM, have not reached agreement or developed policy options for several critical issues, all of which are identified in the pyramid (Figure 2). Chief among these critical issues are:

- (1) agreement on equitable shares of water;
- (2) concerns about sovereignty;
- (3) difficulties associated with co-operatively managing water across borders, which goes directly to the role of the hydro-hegemon and its

ability to either negatively or positively influence the behavior its co-riparians;

(4) viable streams of funding from donor or state actors,

(5) as well as long-term skill and knowledge availability to improve sustainable water management processes.

While each of these issues must be addressed, it is highly unlikely that either of the basin commissions, ORASECOM or OKACOM, is sufficiently mature or currently capable to handle these concerns, or their implications, because of limited resources and a lack of the necessary political clout to establish, implement, or enforce the necessary policies.

Consider for a moment the matter of equitable shares of water. The matter of equity (and apportionment) has plagued states and been at the center of many disputes and conflict over shared water resources.³³¹ Further, water equity and sovereignty are interrelated. These riparians have not addressed the basic concerns about sovereignty issues. “ The governments of Angola, Namibia, and Botswana see the judicious (small-scale) use of water from the Okavango River (Angola and Namibia) or delta (Botswana) as entirely legitimate from a territorial sovereignty viewpoint (Heyns 1995b; Republic of

³³¹ The territorial sovereignty-equitable apportionment water theory is also referred to as the Harmon Doctrine, named after US Attorney General Harmon in 1896, in connection with the controversy between the United States and Mexico over the use of the waters of the river Rio Grande. This theory holds that riparian states have exclusive or sovereign rights over the waters flowing through their territory. However, such a position is not favored in the international global water community and has been refuted in the interest of ‘justice’ and the emergence of ecological-sustainable thinking. Equitable utilization is the more current acceptable approach and is supported in several international accords, like the Helsinki Rules and conventions such as the 1997 Convention on the Law of the Non-navigational Uses of International Watercourses.

Botswana 1990; SADC 1995b).”³³² If each country asserts that its water share should be based on either territorial rights (that is, the ability to actually extract and utilize all the water that flows through its sovereign territory) or how much water-flow a particular state contributes to the basin’s total, the challenge will then be to reach an alternative agreement for water sharing. In such cases, however, the greater potential for conflict is most likely at the local or community level, unless there are prolonged or severe water shortages that result from non-state driven but natural circumstances, such as drought or climate change. With any increased demand for an already scarce resource, there is the potential for future conflict. What then are potential options to constructively approach this problem? Specific recommendations will depend on individual states, their specific needs and capabilities, and objectives. Additionally, there will be regional and basin specific solutions.

If water supply and availability *is* the problem, the simple solution is to either find more of it or reduce demand. Both options are viable. However, finding more water may entail environmental and financial costs that exceed any one of these states’ ability to pay for. For example, because Namibia’s freshwater surface water supplies are so limited and the state itself is under local, regional, and international pressure to not extract water from the upper reaches of the Okavango River where it crosses into its territory, Namibia should consider desalinization and increased ground water extraction. Desalinating, unfortunately, can be very costly. The United States Geological Survey³³³ suggests that desalinating seawater using a process called reverse osmosis costs upwards of \$1,000 per

³³² Ashton, “The Search for an Equitable basis for Water Sharing in the Okavango River Basin in the Okavango River Basin,” 170.

³³³ A part of the United States Department of the Interior.

acre-foot or more compared to about \$200 per acre-foot for water from normal supply sources. The technology is available, but plants and a delivery infrastructure system would have to be constructed. Likewise, training a skilled and knowledgeable staff to operate and maintain the desalination system would be necessary.

If a basin-wide solution is sought, each of the basin states will need to collectively identify and agree on the course of action that will be acceptable for determining each riparian's current and future water needs as well as how to specifically allocate catchment sources. Such an approach will be time-consuming and contentious, overwhelmingly burdened with politics, *and* will require re-negotiating over time as conditions and water need change. Again, this assumes that water supply is the problem and the priority.

If, however, water supply *is not* the problem, but is posited as the manifestation of a deeper matter of concern, a different set of solutions are necessary. The dispute between South Africa and Namibia about the Orange River boundary is such an example. The resolution of this matter will be considerably complex and is likely to involve challenges to policy and rules established by the Organization African Unity³³⁴ and international law. Inasmuch as the gains by Namibia are significant and potential losses to South Africa equally significant should the river boundary be redrawn, I anticipate this matter going to the International Court of Justice (ICJ) for resolution—likely an unsatisfactory outcome for both. Given Namibia's experience with Botswana regarding ownership of disputed territorial islands in the Caprivi region, which stemmed from colonial treaty ambiguity, Namibia may be reluctant to resort to the ICJ. An alternative, of course, is that South Africa could agree to share the financial gains it currently

³³⁴ The OAU was disbanded in 2002, and was replaced with the African Union.

receives from mineral resources located in the disputed river boundary territory with Namibia. Again, any decision to do so would have to be negotiated, which would require both countries to agree *and* to accept the negotiated outcomes. Developing policy recommendations that address the remnants of the shadows of the past (SOP) are likely to prove more challenging than the more material matters of conflict and dispute. One reason for this difference is the difficulty in quantifying what the specific problems associated with the SOP are likely to be, and to what extent they can be changed, not just recognized. Recognition of past grievances or other related-SOP matters may serve as much purpose as actually solving them.

Where colonial boundaries have left some states more water rich than others, better able to confront post-colonial governing, or with the challenge of redressing the both colonial and post-apartheid infrastructural inequities, policy recommendations must be specific to the matter of concern. Almost without exception, each of the riparians is confronting the fact that large numbers of their population live in poverty, their citizens face a high rate of unemployment, and are so poorly educated that they may be unable to fill the jobs crucial for their national well-being, especially those jobs related to the sciences, water planning and infrastructure, and the environment. As the current water elites decline in numbers, retire, or leave the field of transboundary water discourse, the shortages of a “next generation” become more apparent, and progress toward improved cooperation slowed or stopped altogether. This is particularly important for the riparians in both the Orange-Senqu and Okavango River basins, and is certainly relevant to other states where the shadows of the past are likely to have a direct impact on the future. Therefore, attention to training and educating future hydro-political actors as well as

crafting scientifically based, politically unassailable, and very detailed agreements that include mutually agreed-upon details so that future cooperation in these and other river basins where there are shared water resources is guaranteed.

Revisiting the Shadows of the Past

The role of the past, its impact on the present, and the connections between historical events can be difficult to anticipate. As illustrated in both the Okavango and OSRB cases, the colonial past, liberation struggles, and global cold-war politics are interconnected in unalterable ways. The past has left indelible marks on the now-independent southern Africa states.

The Okavango and OSRB basin states share common colonial and early post-colonial history. For example, with the exception of the Portuguese in Angola, much of the basin riparian territory was under British domination, which has resulted in Anglo-dominated linguistic, legal, political, and economic commonalities across borders. Also, colonialism lasted longer in this region than anywhere else in Africa.³³⁵ Other connections include a regional migrant labor system fueled by diamond and gold discoveries in South Africa, where mine workers were brought in during the colonial period and also after independence. During the liberation struggles, those fighting for independence in one country, like Namibia, would exile themselves to a neighboring

³³⁵ Bauer and Taylor, *Politics in Southern Africa*.

independent country which had gained its independence earlier. These revolutionaries might also seek support from socialist-communist external states.³³⁶

Can the shadows of the past recede sufficiently to enable quality transboundary water cooperation? Or will its influence require a conscious decision to re-examine the history and discern its positive and negative impacts on the present political climate? More importantly, will discussing the shadows of the past help determine how much influence history continues to have an impact on material conditions, and how long this influence will last? This analysis doesn't answer these specific questions; however, it states clearly that there *are* relationships between history, ideas, and institutions, *and* that these relationships need to be considered in conflict and cooperation analysis. Given all the evidence of cooperation between Okavango and OSRB states, the high numbers of transboundary water agreements, SADC supported cooperation efforts, the Protocol, and country-level cooperation activities (studies, meetings, international donor support, and other efforts), this research leaves open the question of whether the tensions of history recede and cooperation increases as one moves further into the future.

In this dissertation, I argue that this progression into the future cannot occur, unless and until the shadows of the past are incorporated into the discussions surrounding water resource allocation and development. If one moves to the side the impact of colonialism on geo-political boundaries of modern African states, nowhere is the past felt more than in knowledge and skill gaps. A recent Inter Press Service News Agency

³³⁶ Liberation struggles and post-apartheid efforts were supported both financially and militarily by Cuba, China, and the Soviet Union. Cuba went as far as sending military troops to Angola to support its efforts to repel advances by South Africa.

article, “South Africa: Bleak Future for the Country’s Water”,³³⁷ makes this connection clear. The article raises the alarm about the carcasses of several large crocodiles floating in the Olifants River in the Kruger National Park. Once confirmed that pansteatitis³³⁸ was the cause of death, Lang makes the argument that South Africa’s water resources and related infrastructure have deteriorated rather than improved. He suggests that national authorities have neither maintained nor upgraded basic water infrastructure and that the “lack of maintenance can be partly attributed to the bleeding of skills in the water management sector. Many hundreds of water professionals have left their jobs in local municipalities and have not been replaced with people of comparable skills.”³³⁹ Not acknowledging the vagaries of history, and their impact on educational access, would make this brain-drain a mystery. As it is, the absence of skilled water professionals is one of the material reminders of South Africa’s colonial history.

Future Research

I envision several areas that logically extend this research. First and foremost is a more detailed examination of how history impacts transboundary water conflict and cooperation, as well as the way historical legacies structures the problem of transboundary shared and scarce water resources. The post-colonial African state is a recent phenomenon, but the histories of these nations do not begin with their independence. As a consequence, treaties signed between their respective colonial

³³⁷ Lang, “South Africa: Bleak Future for the Country’s Water.”

³³⁸ Pansteatitis is a condition usually associated with the consumption of rotten or rancid fish, which causes inflammation of body fats, which in turn causes death for the animal. In this case, the animals were crocodiles, a protected species in the Kruger game reserve.

³³⁹ Lang, “South Africa: Bleak Future for the Country’s Water.”

powers may have a direct impact on water resource allocation. On the other hand, how long are the shadows of the past in Europe, South East Asia, or the Americas? Does this theoretical framework translate into understanding the hydro-politics of Hungary and Slovakia on the Gabčíkovo-Nagymaros Project in the Danube River or Mekong River Basin riparians and their respective efforts at transboundary water cooperation? Understanding precisely how history complicates cooperation, contributes to resource conflicts, or becomes a mechanism that mediates asymmetric power would mark a major contribution to the analysis of hydro-politics. For even greater intellectual progress along these lines, directly connecting the shadows of the past to hydro-hegemony would enable scholars to advance the multi-disciplined meta-conversation and scholarship necessary to improve our understanding and policy development toward recommending solutions.

Political, economic, and environmental conditions are undergoing rapid change in southern Africa. However, when compared with the rest of the global south, conditions of poverty and water scarcity remain high.³⁴⁰ Since most southern Africa states are still led by “. . . first-generation liberation movements cum governments. . .”³⁴¹ or flawed second-generation ones, it remains to be seen if the SADC cooperation regime, and basin agreements such as ORASECOM and OKACOM, can be sustained beyond current leadership. Many of the current white African water elites are retiring, moving on, or being replaced by black Africans—due in part to post-colonial and post-apartheid affirmative action policies. Are they as trained and qualified as those they are replacing? Will that make a difference in the types of riparian negotiations and agreements and

³⁴⁰ Human Development Report, *Beyond Scarcity: Power, Poverty and the Global Water Crisis*.

³⁴¹ Bauer and Taylor, *Politics in Southern Africa*, 13.

capacity? Will the need to continue transboundary cooperation efforts remain an important government concern?

Another area of research would be to further explore how international donors are influencing regional, national, and local transboundary hydro-politics and the implications for conflict should those resources decline significantly. Much has been written about the level of international donor support for capacity building and environmental management of shared water resources and water supply. There is less information on how those efforts act as driving forces behind African transboundary water law, agreements, institutional development, cooperation efforts, or conflict resolution. What is the relationship between post-colonial transboundary water cooperation and institution building and external drivers?

International relations scholars have demonstrated a long-standing interest in the dynamics of power particularly as a feature of nation-states in an international anarchic system. What is less understood is the basis of asymmetric powers among states and the role such power plays in cooperative or conflictual resource politics. Additional research in this area would contribute to a restructuring of the debate around hydro-hegemony, and a critique of the role of the hegemon in fostering transboundary cooperation or managing transboundary water conflict. A better understanding of the nature of resource political conflict and what constitutes cooperation is needed. Who is really in charge? What are the costs of cooperation and for whom? What are the costs of conflict? What happens if an upstream riparian exercises its sovereign right to utilize its water resources in such a way that the downstream riparian is adversely impacted? Would such an action be considered a precursor to a major water conflict? How *would* a major water conflict be

defined? Researching these questions would define several key concepts, and thereby aid in problem identification.

A final future research effort would be to unpack the hierarchy of obstacles to cooperation (Figure 2, Pyramid), define its terms in greater detail, and further test its validity. I believe the Pyramid offers a set of hypotheses; it suggests that riparian states must contend with factors at the base of the pyramid (sovereignty, hydro-hegemony, number of countries, and upstream-downstream conflict) before moving to the next level. Those factors, as well as asymmetry, riparian position, and conflicting political interests, must be dealt with in order to make cooperation efforts effective. The case studies sought to illustrate this aspect of hydro-political transboundary analysis, but more study along these lines, including further quantitative research giving a weighted value to each of the factors, would be beneficial in expanding the scope of the present research.

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